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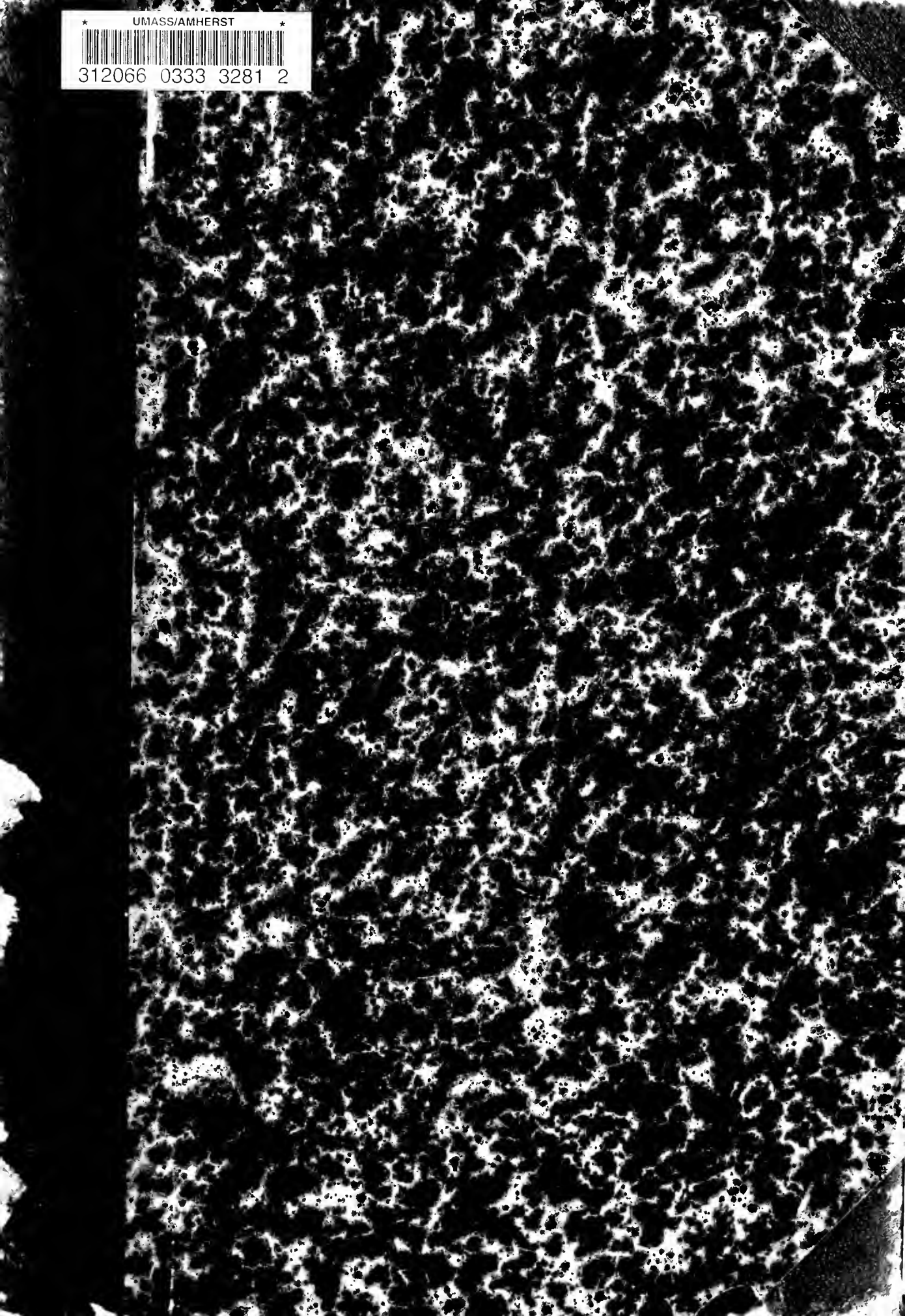

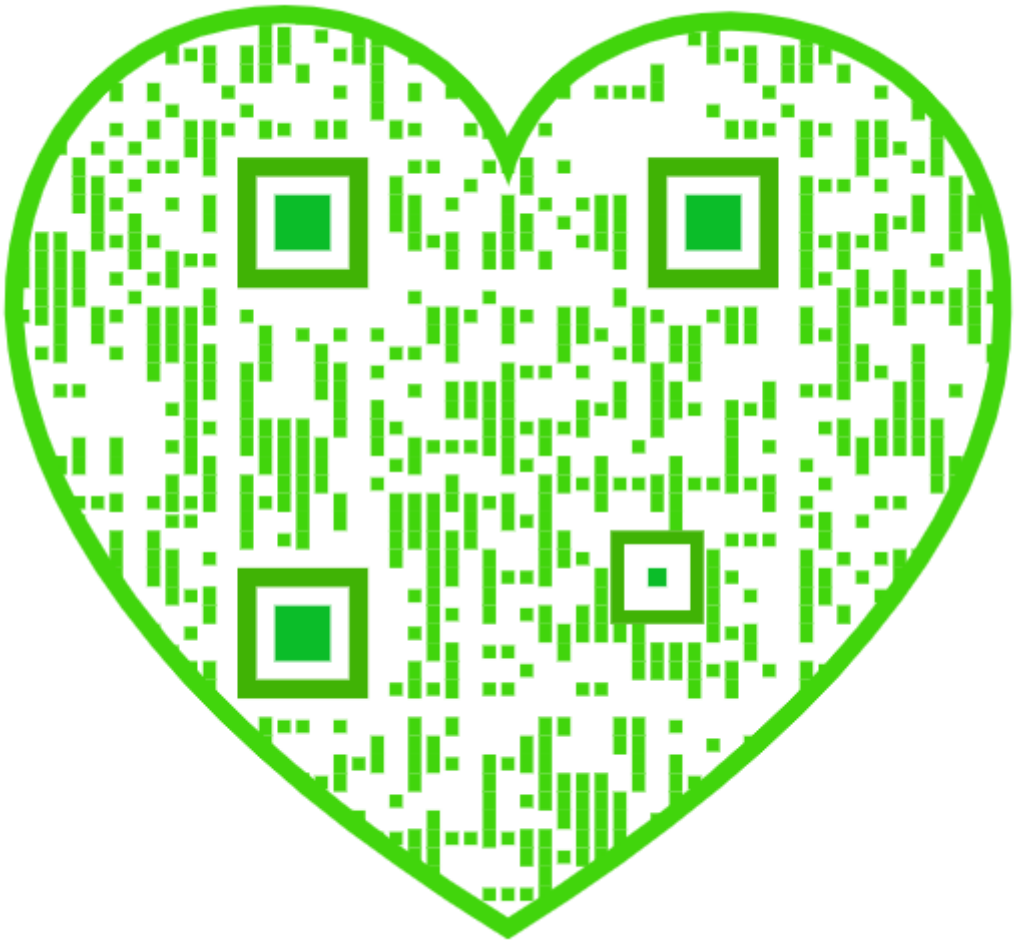

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THE

British Bee Journal,

AND

BEE-KEEPER'S ADVISER.

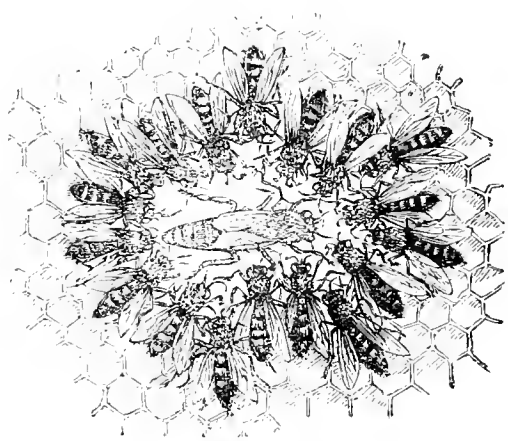
EDITED BY

THOMAS WILLIAM COWAN, F.G.S., F.R.M.S., ETC.

AUTHOR OF 'THE BRITISH BEE-KEEPER'S GUIDE BOOK.'

VOLUME XIII.

JANUARY–DECEMBER, 1885.



PUBLISHED BY JOHN HUCKLE, KINGS LANGLEY, HERTFORDSHIRE;

AND BY

KENT AND CO., 23 PATERNOSTER ROW, E.C.

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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, w.c.'

[No. 161. VOL. XIII.] JANUARY 1, 1885. [PUBLISHED FORTNIGHTLY.]

Editorial, Notices, &c.

JANUARY, 1885.

A new year lies before us—a blank page of the World's History on which no characters have as yet been traced. What will it bring forth? Who can tell? We are not endowed with the gift of Prophecy, nor can we pretend even to the foreknowledge of a Zadkiel. It would, therefore, be in vain for us to promise our readers an abundant honey season such as that of the past year, or to foretell a golden age in which there shall be no strifes or controversies, or anything else which is likely to disturb the peace of the bee-keeping world. All that we can say is that should we be again favoured with an abundant honey harvest, there is ample machinery now prepared in the 'British Honey Company' to enable the bee-keepers of the United Kingdom to take full advantage of it; and as for strifes and controversies we can only hope that they will be instrumental in working out some good result, which may perhaps not be apparent until the year 1885 has long been numbered with the past, and the present generation of bee-keepers have long been mingled with the dust. We have to labour now for those who shall come after us, as our predecessors have laboured for us. Let us hope then that the industry which we are all united in supporting and developing may receive such an impulse and stimulus during the next twelve months that the year 1885 may be marked 'with white chalk' in the annals of bee-keeping as a year specially marked by advance and progress as well as by harmony amongst the bee-keeping fraternity.

PEEL TESTIMONIAL.

We are very glad to find (see p. 10) that Mr. Peel has once more put down his foot upon the Testimonial scheme, and we hope that nothing will induce him this time to take it up again. It was never a *bonâ fide* affair. Mr. Peel, it was well known, had strong objections to receiving a testimonial, and the majority of bee-keepers do not seem to have been anxious to present him with one. The only pretence for the Testimonial was the benefit which was likely to accrue to it from the County Associations; but the County Associations do not seem to have exerted themselves much in the matter. Testimonials, if they are to be presented at all, should be carried through on the spur of the moment, and not allowed to drag on for twelve months. We hope that we shall hear of no more Testimonials in the bee world for a long time to come.

MR. ABBOTT AND THE AWARDS OF THE EXECUTIVE OF THE INTERNATIONAL HEALTH EXHIBITION.

With reference to the letter from Mr. C. N. Abbott which made its appearance in our last issue, we regret very much that it was not submitted to ourselves by our sub-editor before it was published. Much unpleasantness might in that case have been avoided. The mischief is, however, now done, and we think that Mr. Abbott must plead guilty to a certain amount of *carelessness* on his own part in not ascertaining the facts of a case before he proceeded to comment upon it. The facts are these: The Committee of the B. B. K. A. were requested by the Executive of the International Health Exhibition to furnish them with the names of three gentlemen whom they might add to the list of their Jurors. The Committee of the B. B. K. A. forwarded to the Council of the I. H. E. the names of three gentlemen well known in the bee world for their integrity and impartiality. The B. B. K. A. Committee had nothing further to do with the matter; and in our opinion they made a great mistake when they subsequently interfered and recommended the Executive of the I. H. E. to reconsider their awards.

Referring, again, to the same letter we wish to state that with regard to any dispute over prizes which may have taken place at a Surrey exhibition, we have no knowledge at all about the matter. We have never attended an exhibition in Surrey. If Mr. Cheshire judged at the show in question, he was in all probability invited to do so by some gentleman connected with the Surrey County Association; and it is impossible that we could have given any *distinct undertaking* (as Mr. Abbott alleges) that the Surrey gentlemen should not engage whom they pleased as the judges at their shows.

ELECTION OF COMMITTEEMEN.

It is to be hoped that those who offer themselves as candidates for the Committee of the B. B. K. A. at the approaching election will make up their minds to attend the meetings as regularly as possible, even if it be at the cost of some personal inconvenience to themselves. It is not fair that members of the Association should accept an office, the duties of which they have no intention of discharging. One member of the last elected Committee has not made his appearance at any one single meeting during the past year; another only on two occasions. Mr. Cowan has been compelled to reside abroad during this year through the much-regretted illness of Mrs. Cowan; but he has attended the meetings of the Committee as often as some of his brother members, and has, besides, done a great deal of work for the Association, in spite of the disadvantages under which he has been placed.

We trust that the electors will exercise some discrimination in giving their votes, and select the best men to serve the Association from the list of candidates presented to them. They must remember that if they elect men who will not attend to their duties, they are throwing a very unfair burden upon the shoulders of those who both will and do work hard on behalf of the Association. Any elector can obtain information from the Secretary, Mr. John Huckle, as to the number of attendances which each member of the Committee has made during the year 1884.

CHESHIRE FUND.

V. Novitski	£0	3	0
S. J. Baldwin	0	10	0
J. H. Howard	0	2	6
Total.....	£32	6	6

USEFUL HINTS.

The weather during December has been, on the whole, not unfavourable to bees, although the temperature having been higher than usual will have tended to free consumption of stores.

Examinations must not, on any account, be attempted beyond, if any suspicion exists that stocks are getting short of stores, removing the chaff-cushion and gently raising the quilt sufficiently to notice the position of the bees, as they only cluster on empty cells. If they are at the top of the combs, that will indicate that the stores on those combs are exhausted, or in process of consumption, and if the other combs are already emptied, a dearth is imminent. If, on the other hand, the bees are low down between the combs, and the upper parts are filled with sealed stores, all is well.

Feeding, if required as shown above, must only be by a cake of candy placed on the frames under the quilt, or by barley sugar given in a feeder on the float principle.

Keep warm, and after raising the quilt carefully replace it and the chaff-bag, so as to prevent any draught.

Entrances must be kept clear of dead bees, especially where they have been contracted to very small dimensions. A few dead bees may so block the exit as to cause fatal excitement in the hive. Of course when division-boards are used to reduce the size of the hive, having small passage-ways cut in them, these are the real entrances to the hive proper, and require to be kept free more than the main entrances, which are less likely to become choked.

High Winds.—Always carefully examine hives after gales, to be sure that no displacement of roofs or unsteadiness of stands has been caused.

The treatment of bees in January may be summed up in three words—Rest, Dryness, Warmth.

Appliances.—The commencement of the new year reminds us that in a few months every one will be rushing after hives, &c., and driving makers and dealers frantic to supply the demand. The wise man is he who reckons now (which one can easily do approximately) according to the number of stocks, what hives and other gear he is likely to want, and gives his orders accordingly. He gets better served, and his hive-maker is pleased to have his orders early.

Section Crates.—These will be greatly in demand, as the Standard sections will render all crates made to take any other shapes useless unless altered. Those who have been using any other shapes will do well to remember now that their existing crates are obsolete, and that the demand, when supering time arrives, for crates of Standard size will be great. Therefore order early.

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee Meeting held at 105 Jermyn Street, on Wednesday, December 17th. Present:—T. W. Cowan (in the Chair), Rev. E. Bartrum, Hon. and Rev. H. Bligh, Rev. H. R. Peel, Rev. F. S. Sclater, Captain Bush, R.N., J. M. Hooker, D. Stewart, and the Secretary.

The minutes of the last meeting having been read and confirmed, the Finance Committee presented their report. The same having been considered, it was resolved, That a vote of thanks be sent to each guarantor who had become responsible for any deficiency that might arise in connexion with the expenses of the Bee Department at the International Health Exhibition, and that the Secretary do inform the guarantors that no call will be made upon them in regard to such expenses.

The attention of the Committee having been called to a letter signed by Mr. C. N. Abbott, and inserted in the last issue of the *Bee Journal* relating to the carelessness of the experts who accompanied the judges at the I. H. E., it was resolved that the Secretary do insert a letter in the next issue of the *Bee Journal* setting forth that the Committee of the B. B. K. A. appointed neither the judges nor the experts that accompanied them in making their awards.

Mr. Hooker reported that the Bligh Competition Sub-Committee had held a meeting, and their report had

been published in the last issue of the *Journal*, resolved, That this report be referred again to the Sub-Committee, and that the rule relating to copies of the competitors' diaries being sent at the end of every two months be strictly enforced, and that in future summaries of the reports be published from time to time in the *British Bee Journal*.

The Secretary was instructed to write to the several Members of the Association who were still in arrear with their subscriptions. Resolved, That the next Committee Meeting be held on Wednesday, January 21st, and the Quarterly Conference on January 28th. The Annual General Meeting of the Members of the Association was fixed for Wednesday, February 11th, subject to the approval of the President.

Quarterly Conference, Wednesday, January 28th. Notices of motions for this meeting must be received by Tuesday, January 6th.

Annual General Meeting, Wednesday, February 11th. Notices of motions for this meeting must be sent by Wednesday, January 28th.

NOTTINGHAMSHIRE BEE-KEEPERS' ASSOCIATION.

I beg to enclose a report from a Nottingham paper of a meeting of the members of the Notts Bee-keepers' Association held on the 18th Dec. I had the honour to be elected Hon. Secretary, and I think we can see our way clear to become a successful organization. If you will be good enough to publish this letter, I will ask through you for the hearty co-operation of all bee-keepers in Notts. We intend to hold frequent committee and other meetings, and with the aid of good district secretaries we are bound to succeed.—E. FERNEYHOUGH, *Hon. Sec. Notts B. K. A., Radcliffe-on-Trent.*

The annual meeting of this Association was held yesterday afternoon at the Exchange Hall, Nottingham. Ald. Manning, J.P. (ex-Mayor), presided, and among those present were—The Rev. R. Holden, Rev. T. F. Boultbee, Rev. T. B. Garland, Messrs. J. Brierley, Price, Rose, Beeson, R. R. Godfrey, Mrs. Wotton, Mr. Ferneyhough (hon. secretary), &c. The Nottinghamshire Association of Bee-keepers was established in the year 1884. Its objects are to encourage amongst the residents of the county, and especially the cottagers and labouring classes, a more humane, intelligent, and profitable system of bee-keeping. The Association is a branch of the British Bee-keepers' Association (or Central Society), of which the Baroness Burdett-Coutts is president. The annual report of the Society states that Nottinghamshire is a very good honey-yielding district, but a large quantity of honey is annually wasted in the county owing to a want of proper knowledge of bee-culture. The cottager's honey is, from the manner in which it is taken, often almost unsaleable, and has hitherto been driven out of the market by foreign honey. English honey will always command a better price than foreign, much of which is adulterated, and is entirely devoid of the fine aroma and flavour of pure English honey. Good honey, put up in a neat and attractive form, commands a ready sale, and realises good prices. Among the rules of the Society are the following:—'District secretaries shall be empowered to select, or cause to be selected, one or more representatives of each parish in their district, and shall summon them to attend meetings, either monthly or as often as may be found convenient. At these meetings, after the business affecting the Association has been disposed of, papers may be read, and questions connected with bee-keeping may be discussed.' 'The parish representatives shall furnish the district secretary with a list of all the bee-keepers in his parish, and shall induce as many as possible to become members of the Association. They shall make any suggestions with regard to the working of the Association which they may have to offer to the district Secretary.'

The first business before the meeting was the election of officers for the ensuing year as follows:—President, Viscount Newark; Vice-presidents, Ald. Manning and Mrs. Robertson (Widmerpool); Hon. secretary, Mr. E. Ferneyhough; Hon. treasurer, Mr. H. E. Thornton; Committee, Mr. J. Barron, Mr. J. Beeson, Rev. H. J. L Dobbin, Mr. J. Geeson, Mr. A. Felstead, Mrs. J. Wotton, Mrs. Hole, Mrs. Mason, Rev. A. H. Halley, Mr. A. Lewis, Rev. H. P. Ling, Mr. W. Silver, and Mr. J. Mann.

It was resolved, on the proposition of the Chairman, that the Committee be authorised to appoint district secretaries in connexion with the Association. The Chairman also observed that, although he was not himself practically acquainted with bee-keeping, yet he thought that valuable services might be rendered towards the promotion of bee-culture by the district secretaries, and especially by the clergy of the various parishes.

Mr. R. R. Godfrey, of Grantham, gave an address, in which he expressed the great pleasure which he felt in attending the meeting. He expressed an opinion that each of the district secretaries should be acquainted with the culture and management of bees, and that they should be responsible for the different local exhibitions. He felt sure that Nottinghamshire was one of the most suitable counties in which the operations of the Bee-keepers' Association could be carried on. He spoke of the great success which had attended the holding of a honey-fair at Grantham, and he recommended that each county should give its own prizes for the best honey.

A short discussion ensued, and a vote of thanks was passed to Mr. Godfrey, and to the Chairman for presiding.

CALIFORNIA HONEYDEW.

SITTINGBOURNE.—Petty Sessions, Monday.—(Before F. Locke, Esq. (chairman), R. J. Tylden, Esq., Colonel Tyler, and Major Knight).

Thomas Grant, grocer, Sheerness, was summoned for selling adulterated honey. Defendant said he was not guilty of any fraudulent intention. Instructing-constable Stewart stated that he went to defendant's shop in Chapel Street, Sheerness, on November 10th, and asked defendant if he had any honey. Defendant replied, 'Yes,' and witness then said he would have a pot. Defendant served him with it, and, in reply to his question, said the price was 10*d*. Witness then said he would have three pots. Defendant said, 'I can recommend it, we use it in our own house, and I think you have had some before.' Witness replied in the affirmative, and then paid 2*s*. 6*d*. for the three pots of honey, after which he told defendant that he had purchased them for the purpose of analysis. Superintendent Mayne then came in, and witness handed the three pots to him. Defendant then said, 'Some sell it as honeydew, I do not think it is pure honey.' Cross-examined by defendant: 'You did not make that remak before the purchase was completed.' Superintendent Mayne deposed to receiving the three pots from the last witness in the defendant's shop. He saw that each pot was labelled 'California Honeydew.' Defendant made the remark, 'Some sell it as honeydew.' He gave one pot to the defendant, and retained one himself, and delivered the other to the county analyst. Dr. Adams certified that the pot contained 'a mixture of honey with not less than 50 per cent of corn syrup.' The Superintendent handed one of the pots to their worships, and it was seen that it was plainly labelled 'California Honeydew.' Instructing-constable Stewart (recalled) said he did not look at the label when defendant handed him the pots. Defendant said he told the constable that it was a preparation, and fully explained all about

it before he served him. He said nothing afterwards; all that he said was before the purchase was made. In reply to the bench, Superintendent Mayne said he believed the pot contained nearly a pound. A magistrate remarked that honey could not be purchased at 10*d.* per pound. The chairman said that in strict law they might have convicted the defendant, but as there was a conspicuous label upon each pot, which the constable might easily have seen, the summons would be dismissed.

The Visits of Insects to Flowers.—A meeting of the Maidstone and Mid Kent Natural History and Philosophical Society was held in the Library-room, at the Museum, Maidstone, on Friday evening, under the presidency of Mr. M. A. Adams, M.R.C.S., when there was a good attendance of members. The chief feature was the delivery of a lecture by Mr. J. T. Powell, on the 'Visits of Insects to Flowers,' illustrated by diagrams and followed by an examination of specimens under the microscope. The lecture was exceedingly interesting and instructive, and was listened to with deep attention. Mr. Powell showed what an important work was carried on by insects in the fertilisation of flowers. The subject of the mutual relations of insects and flowers was, he said, a comparatively new one, and it was only within the last quarter of a century that due attention had been given to it. He explained, by means of the diagrams, the structure of flowers, and went on to deal with their fertilisation by means of the pollen. If a flower were fertilised by its own pollen that was called self-fertilising, but if the pollen were carried to it from another flower that was called cross-fertilising. Cross-fertilisation was effected in two ways, either by the agency of the wind or insects. Plants which were cross-fertilised, as a rule, produced better seed than those which were self-fertilised. The relative position of the stamen and pistil in some flowers rendered self-fertilisation impossible, and in these cases if it were not for cross-fertilisation the species would die out. Wind-fertilised flowers are usually deficient in brightness; those fertilised by insects are generally brilliant. Some were of opinion that insects had no sense of smell, but, however that might be—and it was a subject on which they knew very little—he, for his part, believed that insects were attracted by odours. The great attraction which flowers had for insects was the sweet juice in the nectaries known as honey. The lecturer proceeded to show that in passing from flower to flower the insect conveyed pollen on its feet, and this pollen was rubbed off. While the bee or other insect was suiting its own purpose by taking the honey it was also transferring the fertilising pollen. To female insects, particularly bees, which were the chief means of conveying the pollen, the pollen itself was an attraction, and their instruments for brushing it up and carrying it away had been often described. The lecturer explained the *modus operandi* of bees in visiting certain flowers, giving minute information as to the transference of the pollen. In some instances, he showed that it was necessary before fertilisation could take place, that the bee should literally force itself into the flower. This was the case with the snap-dragon flower. In other cases not only was the strength of the insect a factor, but the weight also. He then explained the construction of the sweet pea, and showed that, but for the weight of the bee having a mechanical effect in bearing down a portion of the flower, fertilisation could not take place. Hive and humble bees were the usual visitors to the leguminous family, and without the intervention of the bees we should get no fruit from the kidney beans. It had been found that, by keeping bees away from kidney beans, the flowers did not set. Referring to the orchids in the diagrams, he said there were eighteen ways in which they could be fertilised; but Darwin said there were only six ways in which they could be fertilised with advantage. The fertilisation of the flowers of the orchid family would always be associated with the name of Darwin. Night moths visited some of the orchids, which could not be fertilised except by insects with very long tongues. The pollen-masses stuck to them and were thus conveyed to other flowers. Mr. Darwin found a moth with a pollen-mass sticking in its eye; and an entomologist caught a moth at Dover and sent it to him (the lecturer) with over twenty pollen-masses sticking to its tongue, so that it must have been pretty much embarrassed thereby, as it was not able to coil its tongue up in the usual manner. Garden sage sometimes produced flowers, which were rather large, bright blue in colour and thin-lipped. In this family the older flowers were fertilised from the younger ones. Mr. Powell then went on to show that the constancy of insects is of considerable importance in fertilisation, that was to say, whether they stuck to the same sort of flowers in the same journey. In the hot July of 1881 he watched the insects at Cromer, and one result of his investigation was that bees, as a rule, were very constant and butterflies very inconstant. The hive-bee was the most constant of bees. He found that sometimes the inconstancy was only seeming, as the bee would leave a flower and go to another simply for the purpose of moistening its throat, and would then return. Some flowers were entirely fertilised by nocturnal moths, among them being the red valerian, which is so plentiful in the cuttings on the North Kent line. This flower was fertilised by a moth with a tongue an inch and a quarter long. Only a few British flowers were adapted to fertilisation by wasps, which had short tongues. All the flowers so fertilised were very shallow and dull-coloured, and the wasps were left by other insects in undisturbed possession of those which they could conveniently visit. In the course of further observations, the lecturer spoke of the effect which overgorging had on the humble bee, and which led one to think whether the honey was not by some means converted into mead. Certain it was that the humble bee was very intemperate. The shades of night might come on, but the humble bee 'o'er all the ills of life victorious' heeded not, and the morning sometimes found him lying on the ground bitten in two with his honey-bags ransacked. Some thought this was done by the birds, but he had seen that long beetle-like thing, the black cocktail or devil's cock-roach, bite the humble bee in two and take its honey.

A cordial vote of thanks was given to Mr. Powell for his valuable lecture.

Honey-Bees and Bee-keeping.—A lecture on these subjects was given to the Christian Association at Spalding, Lincolnshire, by Mr. H. Stanley Maples to a large and appreciative audience. The lecture was illustrated with appropriate diagrams, which had been lent for the occasion by Mr. Godfrey.

Foreign.

FRANCE.

With the present number, the *Apiculteur* of Paris completes the twenty-ninth year of its existence. The same contemporary affirms that these last few months have been most unfavourable for the sale of honey. At first it was hoped that the cholera would have spared the northern districts, which are the best market for this article; but its appearance in Paris has greatly interfered with the honey trade. The same journal comments upon the Honey Company which has just been formed in London. 'This half million of francs,' it remarks, 'will soon be subscribed, for in England, as well as in the United States, people are practical, and serious undertakings are readily patronised.'

At Havre the wax market remains stationary, with a regular demand: best 'Brittany' in cakes being particularly sought after, and 315 francs per 100 kilos given for 'best' in bond; seconds fetched from 300 to 310 francs in cakes.

ITALY.

Leandri's Solar Wax Extractor.

Having noted this new invention in previous numbers of the *Journal*, we have now much pleasure in placing before our readers a translation of a report made upon the same by Monsieur Guilois of Saint Pierre (France), published by our contemporary the *Bulletin de la Société d'Apiculture de la Somme*.

'The members of the Société d'Apiculture de la Somme have doubtless read a report published in No. 36 of this *Bulletin*, and signed by the Rev. Dubois, describing a solar extractor invented by Signor Giuseppe Leandri. Many of them may, however, have forgotten what was said, whilst it is even probable that others have failed to attach to it any great importance, their first impression being that a utensil of this nature could give good practical results only in those southern countries where the rays of the sun are of sufficient power to melt the combs without artificial assistance.

'One, however, of our readers was struck by the description of the extractor then given, and made it a point to give it a fair trial. This was done in the course of the closing season, and I can bear witness to the fact that it was a satisfactory success. In fact, I have been an ocular witness, and I have Mr. L. Sauvage's complete permission to make known the fact, the experiments with Signor Leandri's extractor having been made at his residence, although slightly altered to render it more suitable for the climate of the district. I may say that besides melting down old combs M. Sauvage used it also as a honey-extractor; in fact M. Sauvage has been using it for both wax and honey as required, and his success was so complete that old combs were converted into moulds of wax in one single operation.

'To those who may doubt whether it is possible to raise the temperature so high by means of this apparatus, I would only say that a thermometer which we placed inside it had to be withdrawn for fear of an accident, as the mercury had reached its highest point. Then, again, it was found that the wax remained liquid in the mould below so long as the apparatus remained exposed to the sun, thus proving that a sufficiency of heat for the operation was not only reached but even exceeded. Of course it is evident that an apparatus of this nature cannot be of much practical service in establishments where wax-melting has to be done at all times of the year. In such cases it would never do to depend entirely upon the rays of the sun, but it is just the thing for the majority of private bee-keepers whose production of wax is limited, and are naturally desirous of using up every particle of their old combs, without having recourse to the uncomfortable process of wax-melting as is now generally practised, particularly as with Leandri's extractor we shall in future be able to obtain from rejected combs as fine a wax as has ever been exhibited at our shows by our most expert professionals.

'At first it was apprehended that this process would never afford a perfect extraction, and that a certain amount of wax would be sure to be lost in the residuum, but in practice it has been found that this is not the case. Still, those who are not thoroughly satisfied can easily pass the residuum under a press immediately it is taken out of the extractor.

'I am sorry I cannot give the exact measurements of the extractor, for to render them intelligible it would require a few diagrams, but our colleague is at all times willing to show his to any one calling. There is also another model at the residence of the President of our Society, No. 47 Place Saint Denis, Amiens, and any one is welcome to see it and to copy from it all necessary particulars.

'Now, as regards the alterations made upon Leandri's original idea, I may say that in the first place the dimensions have been increased and the mould is now placed inside the extractor. The triangular case which constitutes the main body of the apparatus, is set upon four feet, and it is between the two in front that the mould for the reception of the wax is situated. Consequently, this mould is no longer exposed to the air as in the original invention. The height of the front wall has been so calculated as to produce hardly any shade in the apparatus. This is an important point, and to fully understand its value, it will be sufficient to place a particle of any opaque material, and it will be seen that the melting of the wax is at once checked. It is furnished with two glasses, the distance which separates them being about 0·02 Cent. They are what are termed semi-double glasses.

'The board or floor in which the comb is placed is moveable and is made of boards about 0·015 Cent. thick; the whole being lined with thick tin. Two inclined grooves in the floor conduct the melting wax into the mould. This mould has the advantage of being moveable, and can therefore be taken out whenever required for cleaning or removing the residuum. In order to protect the glasses when not in use, M. Sauvage has invented for it a cover, which he fixes to the walls of the outer box by means of hinges. This cover is, moreover, lined with zinc thus acting as a reflector and adding more power to the action of the rays of the sun.

'Other modifications upon Leandri's original idea have been introduced, but are of minor moment. The most important point was the price. As now altered, however, it cannot cost much. M. Sauvage is of opinion that a well-made solar extractor, like the one here described, should not cost more than fifteen or eighteen francs, plus the cost of the glass, zinc, and paint. Being simple, I feel convinced, that, once seen, many a bee-keeper will make one for his own use. Once filled with old combs and exposed to the action of the sun, it will not require any attention for hours. Should the mould become full of liquid wax before the combs are all melted, the cover is lowered and the melting is at a stand-still. For extracting honey, it is sufficient to place underneath a tin or basin, and to put into the extractor the combs well broken up. For this operation the aid of the reflector is not required.'—Guilois, *Saint Pierre*.

HUNGARY.

An international exhibition is to be held in Buda-Pesth in the course of the coming summer, of which all kind of live stock will be a speciality. As regards apiculture, there will be one week during the exhibition in which foreign breeds of bees, either in hives or in travelling-boxes, will be examined and reported upon by a specially appointed committee.

GERMANY.

Müllenhoff's Theory of the Origin of Bee-cells.

(An address given at the meeting of Bee-keepers at Frankfort on-the-Maine, by the Vice-President, Mr. W. Vogel, editor of the *Bienenzeitung*. Translated by S. Stutterd.)

Honoured Assembly,—My task is to make you acquainted with Dr. Müllenhoff's theory of the origin of bee-cells. Will you allow me first to indicate to you the position Dr. Müllenhoff occupies? He is a naturalist and chemist at Berlin, and, although not actually a bee-keeper, he avails himself of every opportunity of studying bees, and was for this purpose twice at my apiary during the summer.

Dr. Müllenhoff has laid down his theory on a strictly scientific basis, and it is at this time going the round of

scientific circles. I have, however, no intention of bringing the theory before you in scientific form, but rather prefer to popularise it, and I will endeavour to give you the theory, according to my apprehension of it, as far as possible in my own words.

Let us, first, have before us the different kinds of bee-cells. I need not dwell on this part of the subject, as you are all familiar with it. The smallest is the worker-cell: it is an hexagonal column with a pyramidal base, which is formed by three rhomboids. The drone-cell is only distinguished from the worker-cell by its size. The queen-cells, on the contrary, stand in contrast to the hexagonal cells. I speak here of the so-called swarm-cells, the primary queen-cells. Such a cell when it is opened is like a truncated cone, round on the inside and with a cup-shaped base; originally the queen-cell is tolerably smooth on the outside, but at a later period small indentations with prismatic borders may be observed, especially at its lower part. Further, where the bees on a comb pass from worker-cells to drone-cells we find the transition-cells. They are mostly irregular hexagonal or pentagonal columns with pyramidal bases. The cells which are attached to the hive are pentagonal columns which with one entire side abut on the roof of the hive or on the comb-bar for the purpose of giving the comb a hold. The so-called honey-cells have no immediate interest for us here.

Let us put to ourselves the question: What may have probably been the feelings and thoughts of the man who thousands of years ago, or perhaps thousands of years before that, first took a comb in his hand and considered its cells thoughtfully? That this once occurred we must allow. But, alas! history gives us no information about this fact. That, however, is no misfortune. We bee-keepers, who at least in the summer months have combs in our hands nearly every day, can to-day answer for ourselves the question proposed. Do we not often admire the regular position of the cells, the regular shape, the wise economy of space and material as well as the firmness resulting from the method of construction?

Pappus, who lived in Alexandria towards the close of the fourth century, is the first mathematician of whom we know that he considered the shape of honeycomb-cells. He admired the regular column which is formed by the body of the hexagonal cell. For centuries after Pappus, we hear nothing of investigations about the shape of bee-cells. Maraldi, who also investigated the starry heavens, first recognised the pyramidal base of the angular cells and measured the angle of the three rhomboids. Réaumur, that indefatigable inquirer, conjectured that the bees constructed pyramidal cell-bases for the purpose of saving building material, and caused the mathematician, König, to compute the size of the angle of the cell-bases, without giving him previously any information about Maraldi's measurements. König applied himself to the task, and his computation of the size of the angle agreed within two minutes with the measurement of Maraldi. Not merely the suitability and advantage of the six-angled cell, but also that of the pyramidal base, was immediately established. The honeycomb with its cells passed forthwith, fully and completely, under the domination of geometry.

The Germans have the reputation of being the nation of thinkers, that is, they are never content with a mere outside description of facts and phenomena, but always and everywhere they ask after the reason or the cause of every phenomenon. Certainly, we bee-keepers have given no cause for the German nation to lose this reputation. Very soon bee-keepers were asking themselves: How is it the bee has the gift of building its cells with mathematical skill and accuracy? For long one stood there with inquiring lips.

When one has not the truth immediately at hand, people are very prone to go back to the creative act; for since the human eye did not look on at the Divine creative act, the human mind finds there a very fertile soil for all kinds of hypotheses. So the bee-keepers said, It is innate in the bee this endowment that it has of building its cells according to its requirements—at one time angular, at another time round, sometimes pentagonal, at other times hexagonal. The Creator, says one, favoured the bee more highly than other species of its class. Quite logically one proceeded further upon the basis of this hypothesis and spoke of the transmission of the innate endowment. According to this, the bee, that to-day leaves its cell before our eyes, is, without any teacher, just as wise and skilful as that one was which on that day of creation first hummed responsive to the newly arisen morning sun. Therefore the bee is, according to this, a born architect, a born mathematical genius.

It is not to be disputed that this hypothesis of cell-construction sounded very pleasantly to bee-keepers, and sounds pleasantly to-day. Is it not an elevating sentiment to suppose our pets to be more highly endowed by the Creator than any other animal? I confess—whether it is to my shame I leave undecided—I could never take kindly to the hypothesis generally accepted. It was in vain that I puzzled my brains to get nearer to the complete truth. I wanted to find a connexion between the hexagonal facets of the bee's eyes and the hexagonal cells; but immediately my bold structure collapsed again, for the bee builds cells that are not hexagonal, attachment-cells, transition-cells, and even queen-cells that are round.

Let us now enter, more immediately, into the theory of Dr. Müllenhoff. According to my apprehension of it the fundamental principle of the new theory is as follows: the bee possesses the gift of building cells; this gift is hereditary; but the bee has the capability—like all insects—of building cells standing alone not with angles, but only *round*. Gentlemen, is it not audacious to express such a proposition in view of the honey-comb with its hexagonal cells? Will you kindly take with me a brief glance at the fulness of nature's life? We have in Germany quite a large number of species of wild bees that do not live in colonies. These insects build for every egg a cell standing separate, and the shape of every such cell—whether it may be situated in wood, mortar, or earth—is round: for the most part these cells are cylinders with a cup-shaped base and a similar cover. Accompany me now to Brazil—our thought will carry us there in a moment—and let us examine the nests of the Meliponæ. The honey-cells of this insect stand apart, outside the the brood-nest, and are *round*, mostly conical. Have you ever carefully observed when the queen-wasp, having finished her hybernation, begins in spring to build her nest on a short stalk which serves as carrier, she lays, first of all, the foundation for one cell, and this cell is round? Not before she has laid the foundation for six other cells to encircle it does she transform the one that was at first round into the hexagonal shape. Notice, further, that the wasp-comb has cells only on one side; how does that affect the form of the base of the cells? It is cup-shaped, because from physical mechanical reasons no pyramidal base could be produced. Though why should we roam at a distance? Let us put aside wild bees, Meliponæ, and wasps, and come to our own bees. We are standing before a stock ready to swarm and open the hive. We have first taken two combs out of the brood-nest and find queen-cells, round cells upon them; they are just cells standing apart, and these the bee can only build in the cylinder form, and gives to them a cup-shaped base, and a cover of similar shape. Will you possibly assume that the bee instinctively and consciously builds the queen-cell round? Could not a queen be just as well developed in a larger hexagonal cell, as either a worker-bee or a drone is developed in the hexagonal cell? Why then does the bee build the queen-cell round? Because she can only raise a cell standing apart in the round form. The bee has not such a complicated instinct as the adherents of

the old theory imagine. But will not the worker-cells and drone-cells upset all our theory?

Kindly look with me at a comb which the bees have constructed from the beginning, and on which they are still building. Let us observe closely the cells of the thin margin just begun. On the side of the cells towards the middle of the comb where they abut on three cells we see three smooth surfaces—three sides for the column, but towards the outside, where as yet no fresh cell has been begun, we see not three smooth surfaces but only one single round wall hollow on the inside, just because they can only build round. Indeed the bee is not even in a position to lengthen an individual hexagonal cell hexagonally into a honey-cell: the lengthening is always round on the side where the adjoining cells are as yet not lengthened. Such honey-cells, hexagonal below with rounded prolongation above, may be observed always where an abrupt depression occurs in the adjoining comb Still more distinctly may we see this in queenless stocks without brood: for in them the bees build over cells that contain pollen so called little cups (*Napfchen*): such a cell is hexagonal below, but the little cup at the top is round. Why do not the bees prolong hexagonal cells hexagonally? Because it is not in their power; for they only understand how to build round.

Do you want to have still further proof brought that the bee can only build round cells? If any one should put it to me that I have not produced proofs but only examples, I answer them: our knowledge of bees, as indeed all our knowledge of nature, is not a science of the intellect but a science of experience. Our intellect cannot introduce laws into the hive, but it may gather laws and rules out of the hive.

That the cells of the comb become hexagonal and pentagonal, and have a pyramidal base is a purely physical and mechanical occurrence. Consider, first, that in the nest of the building stock a temperature of 26° to 28° R. (90½° to 95° Fahr.) is maintained. In this temperature, the wax-scales produced by the bees and worked up by their mandibles become soft, and at the same time extremely plastic. From experience you know how soft are the cells of a comb just built. Let us put a comb-bar into a stock that is building for the purpose of watching the bees building their cells. We observe that the bees hang up on each side so that their heads stand opposite to one another. Since now every individual bee pushes itself with the wax to be found between its mandibles as much as possible upwards and forwards, a plate of wax is produced out of the plastic wax through the pressure on both sides. The heads of the building bees meeting one another must always yield towards the side of lesser resistance, that is, a bee on the one side is pushed by its two opponents below, and therefore has its head pushed exactly into the middle of three standing opposite to it. By this pressure, which is exercised on the soft wax, Maraldi's pyramids are produced, that is, the pyramidal bases of the cells. Therefore Maraldi's pyramids are not formed by innate and inherited conscious action of the architects, but exclusively according to purely physical laws. The shape of the bee's head plays no part at all in the production of the pyramidal cell-bases. The sides of the angular cells are produced likewise by the pressure which the cylindrical body of the bee exercises on the extremely plastic wax. Kindly look how the bees build. Here, one bee is building at one cell and around it six bees are building each at one cell: what shape must the middle cell assume? It is *obliged* to form itself into a hexagonal tube. Since the bees in building, not only push the middle wall powerfully upwards, but also the cell walls, and because the abdomen is thinner than the thorax, every cell *must* be a little inclined towards the middle wall.

Every individual bee, therefore, assumes a position as if she wanted to build a hollow cylinder. If we look at the structure of the queen-cell we see the cup-shaped base and the hollow cylinder or hollow cone produced, since there is only one bee in it.

The cells that are attached to the roof are not consciously built pentagonally by the bees. Since four cells abut on such a cell, two sides—namely, the two which join the comb-bar or roof—of the attachment-cell melt into one side, and the pentagonal attachment-cell stands before us. Therefore the production of attachment-cells is a physical mechanical occurrence.

We may illustrate the method of cell-structure by soap-bubbles. Let us put soap-bubbles of equal size into two frames.* Bringing both frames so close together, that they touch one another, we see how hexagonal columns are produced out of the soap-bubbles, and where the bubbles of the two frames touch one another we see Maraldi's pyramids. The soap-bubbles which touch the frames must be formed into pentagonal columns, and therefore assume the form of the attachment-cells. If we use soap-bubbles of varying size, we see where larger and smaller bubbles touch one another irregular prisms are formed, we see even pentagonal ones produced, and have immediately the production of transition-cells before our eyes. If all the bubbles have again an equal size the cells soon assume again their regular form. Instead of soap-bubbles we may use quite soft cylinders of wax with cup-shaped bases. Heidenbach's wax queen-cells for introducing queens will serve. If we suppose, then, an equable pressure exercised on all these cylinders, nothing but hexagonal cells with pyramidal bases would be produced.

You see, therefore, that the old hypothesis on the origin of bee-cells is completely shattered by the new theory; only here and there out of the rubbish heap we may pull out a fragment that may be redressed and made servicable for building up the new theory.

But, then, is it handsome, so unmercifully to overthrow the old hypothesis, that has become dear to us, for the purpose of putting a new theory in its place? Mere hypothesis everywhere loses its *raison d'être* where the naked truth comes before our eyes. I neither bow down before legend nor before mere hypothesis, but certainly in humility before the sunlight of truth.

INDIA.

Eastern Bees.

Mr. Douglas speaks of the unicomb bees, *A. dorsata* and *A. florea*, and the multicomb bee, *A. Indica*. It is very probable that each swarm of *Apis florea* only build one comb, as all that I saw had but a single comb, and I was repeatedly told that they did not build more. Moreover, as these tiny bees do not frequent the forests as much as they do the more open country where shrubs and bushes form the greater part of the vegetation, it is reasonable to suppose that they choose the latter, so as to find near the ground suitable twigs upon which to build; and, in fact, all that I found were in such locations. The pasturage of the open country may very likely suit them better, yet as there are always some large trees among the bushes, they might choose elevated places if they wished. As, however, the single comb is generally attached to a small branch or twig, there is room for but one. This at the top is built around the twig so as to envelope it, the cells being deep for storing honey, the thickness of the comb at the top often reaching two or three inches. Below, where the brood is reared, the comb is, however, but three-eighths of an inch thick. The tiny hexagonal wax-cells, of which there are eighty-one on each side of a square inch of surface (160 on both sides), are very beautiful. Of course it is easy to imagine that a swarm constructing a single comb not much larger than a man's hand can never be made very available, even if it can be kept in hives. I succeeded in taking one hive of these bees

* I suppose the frames would have glass in them.—Tr.

from Ceylon to Cyprus, and they behaved much better than hives of the two larger species. An accident resulting in the death of the queen at a time when no brood was present in the hive was, of course, the virtual extinction of the stock.

Most of the *A. dorsata* stocks which I saw consisted of but one huge comb attached to a large branch, or to some overhanging ledge of rocks. But this giant honey-bee (it surely deserves the name 'honey-bee,' although it is not cultivated) does sometimes build several combs side by side, for when in Ceylon I transferred into a mammoth moveable-frame-hive a stock which had built three parallel combs in a cavity of the rocks. I found these bees in the Kurunegala district at a place known to the natives as Cambéra-galla (*A. dorsata* rock). It was a wild forest region, some miles from any habitation, rarely visited, so that I had much difficulty in transporting my hives and implements to the place, and getting up to the top of the rock, which, perched on the side of a mountain, towered up nearly a hundred feet from the lower side, as near as I could judge. The walls on all sides were either perpendicular or overhanging; and I was at first at much loss to know how we were to get up to the dozen or more huge stocks of *A. dorsata*, whose combs depended from two to four feet from one of the overhanging ledges near the summit. But the natives, of whom there were a dozen present, led me by a crevice just large enough to admit a man's body into the interior of the rock, and, by building a ladder of poles and rattans, we reached a sloping ledge some forty feet up; thence winding around we came nearer the summit, and at last found a dark passage leading right up through the centre of the rock. The top was nearly level, and about ten feet square. A cavity enclosed on all sides but one, and partially roofed over, contained a large stock of *A. dorsata*, which of course I had not been able to see from below. The bees drove us down in the daytime, but at night with the aid of a torch and smoke I cut out the combs and fitted them into frames which were placed into a hive hauled up over the side of the rock. I had learned that the best time to approach these bees in their forest lodgment is at night, as they do not fly much then. The frames of my hives were about 12 in. deep by 18 in. long, and so the combs were cut accordingly. I think larger frames would have been better, but not so easy to transport. As the *A. dorsata* comb is one and three eighths inches thick, the bars of my frames had been made of that width. There were some fifty to sixty pounds of honey in the combs of this stock, and after I had given the bees a fair supply the natives had a nice feast, and some was left over: besides, they eagerly devoured the bits of brood which did not find place in the hive.

As this was towards the close of the season when the bees find little honey, just before the swarming season, it is fair to presume that the amount of honey would be much greater at most any other time, and the huge combs would have made a nice lump of wax. We secured but one other stock of the dozen that were on the overhanging ledge of rock; the risk to limb and life being too great to try for any more there, so we moved on to other localities. Once in moveable-comb hives, I did not find *A. dorsata* intractable, but there are other reasons why its culture *may* never prove successful, although it is an experiment worth trying.

The little *A. Indica* builds its parallel combs (five-eighths of an inch thick, thirty-six cells on each side of a square inch) in hollow trees, rock cavities, etc., and is cultivated to a certain extent in earthen pots, wooden skeps, etc., yet I do not believe with much profit. The queens are prolific, and the workers industrious, but it is what the Germans would surely call a *swarm-bee*. And if kept in moveable-frame hives, the great difficulty, as Mr. Douglas well remarks, would be the absconding of the bees at nearly every manipulation, notwithstanding the presence of brood and honey. I have lively recollections of getting the bees of a recently transferred stock whose combs I was fixing a little, back into their hive six times in succession one morning, performing in these processes a good many gymnastics on the roofs and trees in the vicinity of my apiary. Before I learned of this peculiarity of *Apis Indica* I formed quite a favourable opinion of it, though, from all that I saw, I should think 24 lbs. reported as its yield in the Wynaad rather high, though, of course, I judge merely by the amounts I saw in the combs of the stock I captured. As the cause for absconding seems to lie in the very excitable nature of these bees, I would recommend the use of smoke only when absolutely necessary. They can generally be driven from combs by blowing them strongly, and become less excited than when smoked. They can be brushed or shaken from the combs easily. As the worker brood-combs are but five-eighths of an inch thick, the bars of frame-hives intended for these bees should be but five-eighths wide instead of seven-eighths to one inch, as for *Apis mellifica*, and the spacing but one-quarter in. to three-eighths at the most.

In Ceylon I found two parties who had got out hives from England, which of course were adapted to *Apis mellifica* and had frames whose bars were seven-eighths to one inch wide, and spaced so as to remain three-eighths to half-inch apart. Of course, these parties could not understand why their bees would not do the way the books said other people's bees were accustomed to do, that is, build the combs regularly and but one in a frame, never once dreaming that, not only were they not of the same race, but, even more, they belonged to quite distinct species.

Whatever may be the result of any attempt to cultivate the honey-producing bees native to East India, I still feel sure that, in the hands of a bee-master of sufficient experience and knowledge of principles to enable him to adapt himself, or rather his management, to circumstances, any of the races of the species *Apis mellifica* can be made to thrive in India. Certain I am that those stocks of *Apis mellifica* which I took to Ceylon thrived very well indeed during the time I had them under my observation.

I look forward to the time when bee-culture in India will be a source of no inconsiderable revenue; in fact, I fear the time will yet come when 'Brother Jonathan' across the water will find that his tons of delicious nectar will have to compete in the English market with tons of sweets gathered on 'India's coral strand.'—FRANK BENTON, *Munich, Germany.*

AMERICA.

CYPRIAN AND ITALIAN BEES.

We have now ample means for judging of the temper of Cyprian bees, as shown in their native island, where no questions can be raised as to their absolute freedom from mixture with other varieties. In a private letter to me, Professor Cook, of Lansing, says of Mr. Frank Benton, who has done this good work for us, 'He is scientific in his methods and habits, very earnest and enthusiastic, and honest to the core.' Writing out of his large experience with them, in a season so unfavourable for honey-gathering that, if they possessed any unmanageable irritability, it could not fail to show itself, Mr. Benton gives them the palm, even over Italian bees, for easy control in all necessary manipulations.

Some years ago Mr. Muth, of Cincinnati, after weighing all that our German friends had to say about them, agreed with me in doubting whether their decided merits in most respects were not more than counterbalanced by excessive irritability. Mr. Benton's explanation of the simple methods by which they may be kept

peaceable has dissipated these apprehensions,* and I am strongly inclined to think that we have been fortunate enough to secure a strain of bees which unites the best qualities of both the blacks and Italians. After a large experience for many years with the last-named races, I came to the following conclusions:—

(1.) *Where late forage is scarce, the Italians stop breeding much earlier than the blacks.*

In Oxford, where, after the second crop of red clover fails, bees usually gather less honey than they consume, the Italians, unless artificially stimulated, raise so little late brood that they go into winter-quarters with too few young bees. Under the same conditions, the blacks breed quite late in the fall, rarely ceasing until after severe frosts, and often persisting in it when they have not honey enough to last them for more than a few weeks. Now, the evidence is quite conclusive that the Cyprians, like the blacks, are strongly given to late breeding.

(2.) *The Italians, unless stimulated by judicious feeding, do not resume breeding as early as the blacks.*

In Greenfield, Massachussets (see p. 339, 3rd ed. of my work on the *Hive and Honey-bee*), where I had only blacks, the December of 1846 was extremely cold. January 1847 was the coldest January on record in that latitude for more than fifty years. Once the temperature was 30° below zero, F., and there were two days when the wind blew a strong gale, the mercury getting but once as high as 6° below zero. From the 7th to the 14th the mercury was, one-half of the time, below zero, and only once as high as 10° above—the wind blowing an almost continuous gale. Early in the forenoon of the 14th, the mercury was 10½° below zero. Later in the day it moderated enough for me to examine three strong stocks, in the central combs of all of which I found eggs and uncapped brood, and in one of the stocks a little capped brood. On the 30th of that month the central comb of one of these colonies was found to be almost full of sealed brood, nearly mature. My experience with black bees led me to expect breeding to begin in good stocks about the 1st of January, and sometimes a little earlier.

In my Italian apiary at Oxford, where the mean of the winter is very little lower than the mean of March in Greenfield, I seldom failed to get an opportunity of overlooking my stocks some time in February, and rarely found much brood in that month, even in the strongest; while in most of them, laying had not even begun. The present winter here, though unusually cold, does not compare for severity with that of 1847 in Greenfield, and there have been three thaws, causing the resumption of navigation on the Ohio River. Two of my neighbours examined a large number of stocks, some of which were very strong, and in only two was brood in any stage noticed. While it is very true that a small colony of Italians, when breeding fairly begins in the spring, will, as a rule, rapidly outstrip a black one of equal strength, is it not equally true that what is called 'spring dwindling' among Italians may in many cases be attributed to the above-mentioned causes? In localities where the main honey-harvest is over on or before the middle of July, early breeding is essential to success, and with Italian bees, artificial stimulus must ordinarily be used to induce it. Some of the readers of *Gleanings* may remember my experiments in this line two years ago, interrupted by the return of my old malady.

Thus far, all the experiments with Cyprians which have come to my knowledge show that in their propensity for both late and early breeding they resemble, even if they do not surpass, the blacks. In the *American Bee Journal*, February 2, 1881, Melville Hayes, of Wilmington, Ohio, writes, under date of January 3rd, of his Palestine bees:—'To-day I opened the hives and found brood in all stages from the egg up, in six frames.' I presume that the Holy Land bees will be found to resemble very closely the Cyprians. In this connexion, I will mention the curious fact, that, some years before the Egyptian bees were introduced into Europe, many of the workers of one of my Italian queens had the peculiar crescent-like markings of the Cyprian, Palestine, and Egyptian bees. After importing the Egyptian bees, I could easily agree with Vogel, that the Italian is a cross between this bee and the black. Mr. Woodbury's hard experience with the Egyptian bee in England may easily be accounted for by supposing him to have attempted to handle them just as he did the Italians.

(3.) *The Italians are much more inclined to build drone comb than the blacks.*

When forage is abundant, if an empty frame was placed between two full ones, my experience with the blacks led me to expect them to fill it with worker-comb; and if their queen was one of the current year, I could count upon this with almost absolute certainty; while under the same conditions with Italians, drone comb was the rule, and worker the rare exception. The Italians, instead of filling the empty frame, often occupy the vacant space by bulging out the other combs; and if the honey in them was capped over, they would sometimes build another tier of cells right upon the cappings of the old combs! Time would fail me to describe my various experiences in trying, when forage was abundant, to induce Italian stocks to build worker-comb; and it was only by a very free use of the extractor that, toward the close of my career as an active apiarian, I was able to secure—what cost me no trouble with the blacks—a sufficient supply of worker-comb. By the use of comb-foundation, we are now much better able to remedy this defect in Italians.

Having now mentioned some of the points in which the blacks are manifestly superior to the Italians, it must be evident that the Italians must have some extraordinary advantages to give them the preference among our leading bee-keepers.

From all that I can learn of them, the Cyprians seem to have in high perfection some of the very best qualities of the blacks and Italians; and unless Mr. Benton can find something still better for us in Asia, we may well congratulate ourselves on its introduction in undoubted purity into this country. All honour to Mr. D. A. Jones, of Beeton, Canada, whose extraordinary energy and experience in the management of bees, and large expenditures, have done so much, and promise to do so much more, to secure for Europe and America the best race of bees, or the best cross between different races, that the world can give us! Without Mr. Jones, Mr. Benton might have longed in vain for such golden opportunities; and we should be still groping in the dark, as we have been for so many years, talking and planning 'how to do it,' but still ever so much further off than we now are from the desired goal.

The Holy Land bees procured by Mr. Jones' personal visit to Palestine will probably be found to have the same good traits with the Cyprians, and to be much nearer allied to them in size and disposition than to the Egyptian (*Apis fasciata*). Mr. Jones himself gives them the preference, and it may be that our most valued bees shall come to us from that promised land, flowing in milk and honey! As the Italians are doubtless a cross, there is not much to be expected by mixing their blood with the new-comers.

For the present, I will close by urging *great caution* on both buyers and sellers. It is well known that tested Italian queens have been advertised, not only by parties having insufficient experience in queen-breeding, and

* It may be well to caution those who keep bees very near to public highways to be careful to observe Mr. B.'s directions; and if they have had but little experience with bees it may be as well to let them alone, rather than run the risk of rousing them to fury.

without adequate arrangements for keeping them pure, but from those who have bred from very poor hybrids. Reliable breeders will find it much to their advantage to inform the public from whom they procured their original stock, and why they can safely guarantee the purity of the queens they offer for sale. If these precautions are not attended to from the start, we must expect to have 'confusion worse confounded' by an ever increasing medley of bastardized bees.—L. L. LANGSTROTH.

Correspondence.

**** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of November, 1884, amounted to 1272*l*. [From a private return sent by the Principal Statistical Department, H. M. Customs, to E. H. Bellairs, Wingfield House, Christchurch.]

PEEL TESTIMONIAL FUND.

May I request you to state in your next issue that I cannot, in justice to myself, lend my name to the scheme of a 'Peel Testimonial Fund' any longer? It is well known that at the outset I declined to receive any testimonial on my own account, but that when it was proposed to found, upon the basis of a testimonial to myself, a scheme for advancing the interests of the County Bee-keepers' Associations, I was induced to fall in with the idea from a desire not to stand in the way of any effort made to encourage them and advance their interests. The matter has, however, been before the public for the whole of the past year without any satisfactory result; and I must therefore now withdraw my name from the scheme in question; and with all gratitude to those who wish well towards me, must respectfully, but nevertheless firmly, decline to accept any testimonial upon any ground whatever. — HERBERT R. PEEL, *Thornton Hall, Dec. 19th.*

AWARDS OF THE I.H.E.

The attention of the Committee of the British Bee-keepers' Association has been called to the communication inserted in your last issue, page 434, in which Mr. Abbott states, that he 'supposed' the experts who accompanied the Judges in making their awards in the Bee Department of the International Health Exhibition, were appointed by the British Bee-keepers' Association. I am desired to point out that these appointments were made by the Executive of the I. H. E. The British Bee-keepers' Association were not empowered to make any such appointment.—J. HUCKLE, *Secretary, British Bee-keepers' Association.*

THE READING SHOW.

I am undeserving alike of Mr. Abbott's praise and of his censure. No act of carelessness of mine, when acting as judge at the Reading show, lost him the first prize. The matter is simply this: For the first time, I believe, in the history of bee shows, the judges at the Reading show attempted not only to judge the exhibits of honey and wax by their outward appearances, but brought analysis into requisition. That during the progress of the judging no very intricate chemical processes can be employed, which would involve far more time and labour than could possibly be given to them, is evident: we therefore used, for wax-testing, a little device which you were good enough subsequently to describe in the *Bee Journal*. We did not imagine that that little test gave indications which were absolutely final, but it was considered that any sample not complying with it should be regarded with a sufficiency of suspicion to deprive it of a chance of first prize.

Mr. Abbott's foundation sample, on repeated trials, did not readily follow the test. This created a doubt in the judges' minds, and the prize was awarded to another exhibit.

Subsequent exhaustive analysis in my laboratory, undertaken for my and Messrs. Abbott's satisfaction, established the genuineness of the sample, and suggested to me slight improvements in the execution of the test, which I at once made public.

Carelessness there was none whatever. I acted according to my lights, and surely Mr. Abbott will not reproach me when I confess that in common with other people I *live* and *learn*. So much for the censure.

As a student of science I hold truth above all, and feel not ashamed if I have to tinker at my previous work. I only did what I considered my duty when I showed in the *Bee Journal* the failings and weaknesses of my little test. That feat deserved no praise.—OTTO HEHNER.

JUDGES' AWARDS AT THE I.H.E.

In reference to the extraordinary and regrettable communication (intended as an attack upon myself) appearing in the last number of the *Journal*, I have nothing to say to Mr. Abbott, since the weapons of his selection are not those I could condescend to use. The whole matter, however, concerns the bee-keeping world, and judges particularly, more deeply than would at first appear, so I think it wise to give the facts of the case.

A letter and a telegram were received by me from the Rev. E. Bartrum, stating that the jury who were to judge the Bee Department desired some guidance, which he had been asked to give, but that he would not accept the responsibility unless I shared it with him. Although I had previously refused to act as judge when asked by the B. B. K. A. to do so (for the communication I at first referred to shows but too clearly the annoyance to which a fearless judge may be exposed), my friendship with Mr. Bartrum induced me to comply. My position was that of referee, and nothing was volunteered by me until my advice or opinion was asked. I acquiesced, of course, that the medals should be given as suggested, and regard the alteration as a most mischievous interference with precedent as well as a palpable injustice; and it remains now to be seen whether Mr. Baldwin will remain content with his bronze while he is clearly ahead of the one for which by some means a silver medal has been obtained. That Mr. Bartrum and myself endeavoured to discharge our duties justly and fearlessly as Christian gentlemen will not be doubted by those who know us. But in conclusion I must add that if annoying personalities are to form part of the contents of the *Journal*, it will be for me to consider whether I had better not regard my last contribution to it as having already been written.—FRANK R. CHESHIRE, *Avenue House, Acton, W.*

[To prevent any misunderstanding we think it right to state that the name of Mr. Cheshire was not one of those forwarded to the Council of the I. H. E. Mr. Abbott and Mr. Cheshire have each had their say, and the controversy must now be closed.]

SALE OF HONEY.

From the letters I have received, I have reason to believe that my previous communication upon the above subject has proved of benefit to some who were seeking a market for their honey. My experience during this season will, I think, enable me to throw out a few hints that may be useful in the future to those who will have honey to dispose of.

1. Follow Mr. Hewitt's advice and create a market at home by retailing it yourself; if you object to that, then ask a reasonable price of your grocer or any tradesman willing to sell it for you, but he must have a profit.

2. Two-pound sections or bottles are not ready sale, the one-pound will sell much better, at least fifty to one.

3. Do not put the honey in jars except for exhibition or sale at home, dealers prefer buying in bulk, it costs less carriage and prevents breakage.

This year I have introduced 6*d*. glasses of honey and retailed 1½ gross in a short time, the price meets the wants of the poor mother who only requires a little for her child. I think our next step will be to put up the honey in useful glass vessels, similar to those used for marmalade. If we wish to increase the demand for honey we must not lose sight of these minor matters.

I do not wonder that some bee-keepers cannot sell their honey; they appear to imagine that honey companies and tradesmen keep their shops open to sell their honey without any remuneration. I received a number of letters similar to the two specimens I give. One writes from the west of England, 'I have four cwts. of extracted honey left, I have sold a few pounds at home at 1*s*. per lb., if you are open to buy I will send you the remainder at the same price.' This price with carriage would mean a cost to me of 1*s*. 3½*d*. per lb. by the time it was bottled and labelled. Another writes: 'I have a quantity of honey in 2-lb. bottles, I can send you at 2*s*. 4*d*. per bottle.' This with carriage and breakage would not cost less than 2*s*. 5½*d*. by the time it reached me. No merchant, trader, or company, can help such persons until they bring a little common sense to bear upon the matter.—L. Wren, *Lowestoft*.

SPLIT TOP BARS.

In seeing the remarks of Mr. Hewitt's method of fixing foundations I can quite concur with him as to the evil of the split bar, as I have used both myself, and find from experience that the plain bars are the best. It is all very well for Mr. Booker Hill to say that we want no wax-spoon, but to keep to the effective, quick, and easy way of inserting the foundation. But I fail to see the effectiveness of the split bar. In the first place, we lose quite three-eighths of foundation, besides being so much weakened by the saw-cut, which, as Mr. Hewitt points out, is harbour for the wax-moth; whereas in the plain bar it requires the use of neither screws nor putty, but simply a little hot wax, a feather, and a gauge to put the comb to the centre, and all is complete, and I can truly say that I have used the plain bar for the last three years, and never had but one case of breakdown. As for quickness, I will venture to say that with the wax and feather I could put three combs in while any one else was putting one in the split bar, no matter who he may be; so I fail also to see the quickness, although we may differ in our opinions. I have been a bee-keeper for the last ten years, and I am only too happy to come forward and condemn the split bar as a perfect nuisance in an apiary.—W. Willcock, *Doncaster*.

COMPENSATION FOR LOSS OF BEES.

I had two stocks of bees sent to me per G. E. R. Company from Suffolk. They arrived to me in a very bad condition, the comb, bees, and honey all mixed together. I sent a claim for 2*l*. They replied to the effect that they had inquired into the matter, that they were not properly packed, and therefore they could not make any recompense. Mr. Rivolta and I wrote several times stating we were in a position to prove they were packed properly, and with ordinary care they would have arrived safely. To this they sent an offer of 20*s*., which I refused, and wrote to that effect. To my refusal they wrote and said they would give no more, still maintaining they were not properly packed. To this I wrote again to say we would accept 30*s*. to save further trouble and time; and if they did not come to these terms we should put it into the hands of a solicitor and go in for the full claim. To this I have received the enclosed letter from the Superintendent.—H. W. Hatch.

'Sir,—Referring to your letter of 2nd instant. As I understand from your letter that consignee is willing to accept 30*s*. in settlement, I have without prejudice instructed our station-master at Leytonstone to pay that sum.'

JUDGING.

I have to thank 'An Occasional Judge' for his letter. If a number of our judges would, like him, give us their opinion of what constitutes merit in comb and extracted honey, the discussion of the subject might help to clear away the differences of opinion which at present exist among judges. Your correspondent seems to consider weight a very important point, and I do not seek to deny that it is so, but I would not place a beautifully finished section behind a less perfect one in the prize-list because it was an ounce less in weight. Purity of comb and evenness of sealing should in my opinion get the preference, although there was a little wanting in weight. On this point I would be glad to have the opinion of some of our experienced judges, and I am certain that other competitors will also be gratified for such opinions. I may, with your permission, Mr. Editor, return to this subject, as I think it one which we might profitably discuss during the winter months.—Apiarist.

AN ANNUAL HONEY-FAIR IN SCOTLAND.

The thought has often occurred to me, and must have, I am sure, to many others, why the bee-keepers of Scotland do not hold an annual honey show, &c., say in Glasgow. The Caledonian Apiarian Society hold an annual exhibition in connexion with the Highland and Agricultural Society, and I understand that it will be held this year at Aberdeen. Now, it cannot be expected that all the principal bee-keepers can patronise that show, the reason of it being so far away, and the heavy expenses, loss of time, &c., incurred prevent many from going. If the Caledonian Apiarian Society, with the co-operation of the various bee Associations, would hold an annual show, as suggested, and offer prizes for all the various classes connected with bee-culture, I am sure it would be the means of bringing together more exhibitors, especially amateurs who have never competed before, and would never think of going to Aberdeen to compete with some of the more advanced. A show like this affords an opportunity to every one to bring forward their exhibits, and having Glasgow as the centre, or even Edinburgh, it may be expected that all the honey-merchants, &c., would avail themselves of the opportunity of securing their year's supply, and thus cut out the adulterated stuff that many of our Italian warehousemen indulge in selling to the public as pure honey. Now that the above suggestion is made, I hope some of the more advanced and skilled bee-keepers will take the subject up, and see the advisability of going into the work at once, and let the season 1885 be their first annual show. It would, at the same time, prove very instructive to some of our townspeople, who at present do not understand the nature and industry of our little insects.—J. D. McN.

BEE-KEEPING IN SCOTLAND.

I feel much honoured by the communication of your correspondent 'J. A. B.' in your last issue. In mentioning my success in bee-culture he is kind enough to ask me for a sketch of my life. As that would not be of any scientific importance, or tend to the edification of your readers, I shall limit myself to giving a short account of my endeavours and success in bee-keeping.

I began in the year 1877 by purchasing a single hive. At that time bee-keeping had not (to a great extent) attained the dignity of a science, though it was industriously and profitably prosecuted in all rural districts of Scotland. In 1879 I had increased my stock to six hives, which were reduced in the spring of 1880 to only two. Thus, I may say, I served my apprenticeship. From 1880 till the present time I have not lost one hive in wintering. The following figures show my rate of progress. In 1881 I had five hives; in 1882, thirteen hives; in 1883, twenty-nine hives; in 1884, forty-four hives; and now I have sixty-two. My profits for the four seasons respectively average 23*s.* per hive; the increase of stock should compensate for my labour. I attribute what measure of success I have enjoyed to my reading the *Bee Journal*, care in wintering, and stimulating in spring, having all the hives ready for the first honey-glut. Nor do I go in for continual pottering among the hives, as I consider too much meddling as injurious as too little attention. I have fortunately never yet seen foul brood. My bees are all Blacks, hives mostly bar-frames, double wall, and well packed, frames across entrance, and work on the tiering up system.

As an instance of wintering with little food, last year I had a hive in skep, with young queen and less than 4 lbs. of honey in it. It was blown over in the great storm of 12th December; at that time it had only empty comb. I put a 3-lb. cake of tablet over the hole (made from Saddler's receipt), and the hive wintered safely, and turned out one of my best this summer. At the same time I would not advise wintering light hives, but I merely mention this as an instance of what can be done in an emergency. We have an Apiarian Society here, of which the Rev. J. B. Robertson, of Leswalt, is Secretary.—WILLIAM MCNALLY, *Glenluce, N.B.*

BEE-KEEPING IN SCOTLAND.

In your issue of 15th December, page 388, 'J. A. B.' makes an assertion which is new to me; but as an assertion without proof goes for nothing, I, along with many others, would be glad to hear how he can make out that Scotland ten years ago was far behind its neighbours in this work; and would be glad also if he would give us a statement of the advances, showing in what respect they are advances, made during that term in Scotland. If your correspondent 'J. A. B.' is really in earnest as to forming acquaintanceship with the 'Scotch heroes,' he need have no difficulty, as their name is Legion. For my part, I put no reliance on shows, nor do I consider it a good criterion to judge from what is seen at them. The shows held throughout the west of Scotland for the last century have never yet been equalled by any modern ones. If 'J. A. B.' takes an uninterested view of the Edinburgh Show, he will see that the principal prizes were carried off by the old apiarians, and that those of less worth were not competed for by them, but were left for the younger ones to swell their honours. 'But facts are stubborn chiels that winna ding, and daurna be disputed.' How does it come, if Scotland was behind ten years ago, that their exhibits at the first Crystal Palace Bee and Honey Show (1874) eclipsed everything, as the *Times* newspaper had it, and that the Scotch at that time not only gave lessons, but were entreated by the Southerners to instruct them? Then how is it that, after that date a long time, Mr. Abbott was indebted to the Scotch for information how to manufacture comb-foundations; and that the same gentleman tells us, in the number for April 1883, page 271, that, 'The introduction of the quilt was an invention of his, and that he had a hard struggle to get it forced upon the public,' when this also was a Scotch innovation in use in this country, and recorded by 'A Renfrewshire Bee-keeper' in *Journal of Horticulture*, giving his experience of it in 1860? Then at the Kibble Show, held in Glasgow 1876, was it not a Scotchman who competed with England's champion, Mr. Abbott, the former completely defeating the latter? This we are prepared to prove by many witnesses. I may just mention, too, that the dividing-boards, as well as many other little things, are of Scottish origin; but meanwhile I hold over till 'J. A. B.' gives his proof for what is undoubtedly new to us all.—J. H.

MR. SIMMINS' HIVE.

I should like to say a few words about the hive, &c., Mr. Simmins so kindly described in the *Journal* on January 15th, 1884. I cannot say much as regards the hive I have made for next year, except I can make it in half the time with half the material and half the labour of those I made last year. The draught-preventer seems to me the best I have seen, or know of as yet. The dummy, or dry sugar-feeder, will save a lot of trouble, and is something all bee-keepers ought to be thankful for. The roof I believe to be the best that can be made to keep out the water if made according to Mr. Simmins' instructions. And as for the sections and crates I like them very much. I have tried the American one-piece, and I have tried Mr. Simmins', I much prefer the latter, the foundation can be fixed so nicely and separators are not wanted, nor wedging arrangements, and if top and bottom rails are made of glass, one can see the little labourers at work, and also when the sections are finished. I make my own sections in the evenings and on wet days. If you will kindly insert this in your valuable *Journal* with my very best thanks to Mr. Simmins I shall feel obliged, so that he may know how much I appreciate his hive.—E. LANDER, *Barrow Street Farm, Mere, Wilts.*

BLIGH COMPETITION.

Referring to the report in your last issue, I have no doubt that many of your readers, especially those particularly interested in this contest, are surprised and disappointed to know that so many competitors have withdrawn therefrom; and as my name appears among the scratched, I suspect the cause will be found to be as disappointing to us as to your readers generally; and remembering also how many times regret was expressed that on the former occasion failure as well as success was not reported, I think it may be interesting to give account of my own failure, which I attribute not so much to the rules themselves as the unfortunate construction put upon them. Rule 6 says—

'Competitors will only be credited for sales of honey, wax, or swarms.'

'*All* honey in virgin comb will be credited at 1*s.* 6*d.* per pound.'

Now to my mind this conveys that as soon as sections of virgin honey have been secured (*bona fide* if you like) the competitor is entitled to credit himself with their value estimated at 1*s.* 6*d.* per pound, and I accordingly made my calculations and arrangements. All went on well until I had obtained fair success, when in July I received the following notice from the judges:—

'It must be remembered that nothing is to be credited in account till the money has been received by sale in a *bona fide* market. At the close of the competition alone the honey unsold may be entered.'

I had then obtained eleven two-lb. sections sealed on

both sides, and 4 lbs. slung from seven unfinished sections, and immediately after removing the crate, I swarmed (artificially), using for this purpose a new hive and frames bought with money credited as before mentioned, and it was then too late to introduce the principle of *bona fide* sale, at least to me, for I had calculated the value of my honey, and had already applied the amount. Of course it may be suggested, that my ingenuity ends with obtaining the sections; and had I possessed a pliable friend to hand over so much cash, and for mere form's sake taken away the honey, the difficulty might have been overcome; but I preferred withdrawing from the contest, because I think that selling honey is a depraved art compared with that of obtaining it from the flowers, and that the object of the competition was not to test a bee-keeper's excellence in that direction. I need only add, that had I understood the *bona fide* sale system was to be insisted upon, I would never have entered the list; and the only regret I have is that those embryo bee-keepers about me who have taken so much interest in the operations are deprived of the *results*, after so much painstaking preparation on the part of your obedient servant, Thos. F. Ward, *Church House, Highgate, Middlesex.*

ADULTERATION OF HONEY.

There has recently been much written in the *British Bee Journal* about the adulteration of American honey, but doubtless the quality of a great deal of the inferior honey coming from that country is beyond the control of the bee-keepers there, as the frequent allusion in the *American Bee Journal* and *American Bee Gleanings* testifies to the large quantities of aphid honey collected by the bees there and the frequent inquiries what to do with it. Its deceptive taste deceives many: nor need we wonder at this, seeing it has the bees. If the B.B.K.A. succeed as well in educating the British public in choosing pure honey granulated in winter, as well as they have the bee-keepers in the rearing of bees and collection of honey, great progress will have been made. —R. Thorp, *Langrick, 23rd December.*

REPLY TO QUERY ON THE PRODUCTION OF EXTRACTED HONEY.

'Mid Cornwall' asks, in the last issue, why I disapprove of the doubling system. I think his own statement and experience clearly answer the question better than any words of mine. He admits trying one hive on each plan, and, as commonly advised, adds the brood from another hive to that which is doubled, and relates the result as 105 lbs. from the doubled hive, and 8 lbs. from the hive from which the brood combs were taken, making a total of 113 lbs. from both hives which, divided by 2, would leave an average of 56½ lbs. from each against 63 lbs. produced from the hive managed, I suppose, something after the plan described by me in the *Journal* for February 1st, 1884. However I will briefly state my objections to the doubling system.

1st. The plan commonly advised, and set forth by Mr. Cowan in his *Guide Book*, is to give the brood-combs from some other hive. I certainly object in the strongest manner to this proceeding, as you thus ruin another hive (see 'Mid Cornwall's' result) for honey-getting that season, besides I am certain I could get more honey to work each stock separately, that is, supposing both stocks are alike strong and ready for honey storing as should be the case in every well-ordered apiary.

2nd. I object to the combs in the honey-chamber, or upper storey being there, as you cannot examine the brood-combs in the lower hive without first lifting off the upper storey with its honey and bees. Very often, too, when a second storey is used the bees build little bits of comb between the upper and lower combs, or lower combs and queen-excluder, and the examination of such is only accomplished after much trouble, stings, and death of bees, before all is replaced. The advocates of doubling make a strong point of the bees in natural conditions always placing the honey above their brood. They equally as often place and fill the back combs of their hive first, as may be often noticed in straw skeps before being fed up for winter. No doubt, honey would ripen sooner above the brood-nest on account of greater heat, but in a long hive with myriads of bees, I think the honey would get sealed over quite as fast.

3rd. You cannot work a stock up to be as strong on the doubling principle before the honey season commences as you can on the long hive system; as you have only ten frames for brood in the lower hive: and this is why the advocates of doubling always advise taking the combs from another hive; but you will observe this is no test, nor yet is it fair to pit my system against such a course. I also object to give the whole of the room in the upper storey all at once, and you cannot well give less and contract the space to prevent the heat from escaping.

4th. One season, or even one stock, is not enough to test any one plan or system. In average seasons I venture to say the plan recommended by me would give far and away the best results. It is for such seasons we should provide, although in a good season like the past I believe I could compare favourably as to results.

5th. Bees are more likely to swarm in a doubled hive by reason of there being less surface room over their combs than in the long hive, and hence greater heat, and I also think more bees are kept fanning to keep down the temperature which in the long hive could be gathering honey by reason of there being a greater air surface over the quilt. In conclusion, I believe if 'Mid Cornwall' tries one hive on its own merits on each plan, he will re-echo all I have said. In the long hive you can throw back the quilt and examine the brood-nest without touching or disturbing the honey-chamber and *vice versâ*. If the excluder is made as described in my article, and touches the sides and bottom of the hive, and the zinc is proper size holes, I fail to see how the queen can enter the honey-chamber, and I have yet to find one queen doing so.

Several private letters received from valued correspondents who have followed out my advice given in spring, still further confirm my own experience of the soundness of my teaching on the 'Production of Extracted Honey.'—Wm. Ditty, Junr., *The Apiary, near Newtownards.*

FEEDING, &c.

Having procured Simmins' sugar-feeding dummies for spring feeding, I have made inquiries about Porto Rico sugar. My grocer tells me it is not generally kept, not being much used now, but he can get me a hogshead. Will Mr. Simmins tell me if boiled cane-sugars would answer the purpose? Very nice sugar is to be had resembling the Porto Rico and Demerara, but paler coloured.

Mr. Hewitt mentions Syrian bees, which produce 1000 lbs. of honey to one hive of 60 Association frames, that is, 16 lbs. 14 ozs. of super honey to each bar-frame of bees.

The Ligurians, I believe, do nearly as well. My British bees last harvest produced over 400 lbs. of honey, mostly sections, from six hives. A double-walled hive, with ten Association frames, gave 80 lbs. of section-honey; that is, 8 lbs. to each association frame of bees. 'Mr. John Peel's simplicity' of management gives about eighteen ounces of super honey, extracted I think he means, to each of his sixteen frames, in each hive, viz., two cwt. from twelve hives.

I keep my bees warm with quilts, and chaff cushions in winter, and give them fresh water slightly salted

twice a-week in spring. I know the bees like it, and the Americans say it prevents diarrhœa. I put my supers on in the middle of May, and keep them warm, too, with coverlets, the roof-supers having drop on cosies, wadded like tea cosies; they are easily raised to see what is going on, and look neat. All my hives had provisioned themselves so well for winter, they may want no feeding in the spring.

Large hives to hold so many Syrian bees must be rather difficult to manipulate unless made in the form of a cross, viz., one square compartment in the middle with twelve frames, and a similar compartment attached to each of its four sides, five roofs, and some sponting would be required; but if the bees could get themselves into the central compartment for wintering, the outside rooms might be filled with chaff or other material after inserting a division board, and each have a tube through it for exit and entrance of bees. The loss of a queen from such a hive at some seasons of the year would be very serious; I think on this account I would prefer a ten or twelve-framed hive, and Ligurian or British bees, but being a bar-framist of only three summers, I shall be very grateful for any reliable information.—Bees-wing.

SINGLE *v.* DOUBLE WALLED HIVES.

Perhaps the following may be of interest respecting this question. About the latter end of May an ordinary swarm of bees vagrant were found clustered under the projecting end of a fixed stand in a gentleman's garden in this neighbourhood, on which were two unoccupied bar-frame hives, both filled with combs, one of which was placed over them, but they would not take possession, and so they remained until the 16th of July, when it was decided to destroy them. I heard of them on that date and got permission to take them, which I did on the 18th. Weight of bees 7 lbs., the combs measuring 18×14, with brood in all stages to the very edges, the nights for a fortnight previous being very cold, also a scarcity of honey. I forgot to say the stand was under an open shed facing north.—G. A. Wanstall, *Northbourne, Deal.*

IRON FRAME FOR MAKING INSIDE OF HIVES.

Having seen a good deal about hive-making in the *B. B. Journal* lately, I send you a pattern of an iron frame for making the inside of hives, and for making frames in. You will observe that the *outside* measures 14½×8¾ in.: this I use for making the inside of hive; and the inside of iron frame measures 14×8½ in.; this I use for making the frames in. There will then be left a ¼ in. space around the frames for the bees. I keep the sides in their place for nailing to top bar (mine are 16 in. long) with two pieces of wood cut wedge shape, so as to keep them tight. In making the frames I place the iron in a strong wood block so that it shall stand the strain of the wedges. I have several hives of different sizes, so have altered them to take the Standard frame, and have found the iron very useful. By using it I get every hive and frame one size, so as to be interchangeable. If you think the idea is of any service to the readers of *B. B. J.* you can use it.—J. P., *Kingsbridge, South Devon.*

A YOUNG BEE-KEEPER'S EXPERIENCE.

Now that we are past the hurry and bustle of this long-to-be-remembered honey-season, perhaps you would indulge me as a young bee-keeper and a reader of your valuable *Journal* with a corner of space while I give your readers an account of my experience and a short sketch of my previous bee-keeping history. It is five years ago since I owned my first swarm, but lost it in six months. Three years ago I got another one, and its progeny managed to keep alive till this spring, when the hive lost the queen. But I got a top swarm from my father, and put it in amongst the few remaining bees, and they did fairly well. In the spring I began my practical experience amongst them, assisted in taking three artificial swarms, and transferred two swarms from bar-frames to straw skeps. About the end of July, when my father was at the Caledonian Apiarian Show, I drove the bees from a wooden hive into a straw skep without any assistance. This I accomplished to his satisfaction, and got the swarm to myself. About the middle of August my father was unfortunate enough to get his left leg broken, so I was left in charge of the stock, and had to do the best I could with my slender experience. On the 6th of September I began to remove the supers from the top swarms, and made a fair beginning, by taking 10 lbs. of super-honey from my own swarm; on the 8th I took 20 lbs. of super honey from one of my father's swarms; on the 10th I drove the bees from my own hive, and put them into the one I got in July; on the 11th I took 4 lbs. of super-honey off another hive; on the 12th I drove the bees from another hive; on the 16th I took 15 lbs. of super-honey from a Corelian [?] hive; and on the 18th I drove them into another hive; on the 20th one of the hives we were to winter was rather heavy, so I drove the bees out of it and had about 20 lbs. of comb cut out. This finished my first year's work, heartily tired of it, but ready to do the same again, and, no doubt, would be able to do it better. Except a few stings on the hands, I came off pretty straight, but, of course, the Corelians (?) distinguished themselves in that line, as they do in honey gathering, so they are to be excused.

Now, Mr. Editor, you are always impressing on your readers the benefits they would derive from driving bees, and if they cannot do it themselves to get an expert to help. Now, what is to prevent any one from driving his own bees? Your experts should make the bee-keepers drive them under their directions, and if they would put 'a stout heart to a stiff brae,' as says an old Scotch proverb, they would soon be able to do it themselves. As a reward for my services, I had handed over to me a swarm, fit to keep itself all winter, and I picked up a hive of blacks and fed them, so I have three swarms wintering.—James C. Armstrong, *South Alloa.*

JUDGING AT SHOWS, &c.

I have been much puzzled to find out the rules judges are guided by in making their awards at some of the bee shows, that I think it is high time that strict rules should be drawn up for the guidance of judges, exhibitors, and the public. We frequently hear of dissatisfaction, and well there may be, judging from the following, which came under my own personal knowledge. A schedule said 'For the best stock of bees of any race, to be exhibited living with their queen in Observatory hives.' Now I was under the impression that, under such a wording, the bees had to be of a pure race, and that the queen had to be their own mother. Yet in this case the first prize went to a *queenless* lot, consisting of *mixed* cross-bred Italians and blacks, and the second prize to a lot of cross-breds. Irrespective of this, I should like to know what should constitute a 'best stock.'

Again, in the class for hives, a hive was shown double-walled, nicely planed, nail-holes well puttied, and all well sand-papered, with crate of twenty-one 1-lb. sections—in fact, all except stand, quilt, and painting. I could not see how any hive-maker could execute orders like sample for the price; yet the construction was so 'faulty;' the quilt would not be able to enclose the heat of the hive as to save metal runners, the deal hive-sides had been planed up like the edge of a turning tool, so

that when any weight got in the frames the tops of hive-sides would split off, letting frames into bottom of hive, crushing bees, and filling their owner with disgust, who trusted to the judgment of the 'judge' for its being the right thing. Yet this hive took the first prize for the best frame-hive at 10*s.* 6*d.*

I think the *utility* of all bee-furniture should occupy the essential place, appearance second, and price third, instead of the converse, as at present, and that every hive or appliance taking a prize should be *impounded* as a means of reference, to see if the maker is turning his orders out equal to it.

Also, what constitutes the best honey? Of course stiffness is one consideration and flavour another, but such are the variations in people's palates regarding taste that if fifty different kinds of honey were put up, and as many people set to award a first prize on taste alone, I venture to think nearly every sample would get favoured. If lightness of colour is to be a point, rich-flavoured sycamore honey would have no chance. Ought there not to be classes for sycamore, clover, lime, and heather honey? I think I would exclude 'blackberry' honey, which looks the worst I know of either in its liquid or granulated state, and is therefore hardly fit for shows.'—John Hewitt, *Sheffield.*

AN INTERESTING DISCOVERY.

Every bee-keeper knows that bees in old hives are often plagued by lice (*Braula cæca*), but many will doubt that they are also liable to the itch, yet so it is. Mr. Crapp, Inspector of Slaughterhouses at Strasburg, has discovered on a bee a species of acarus, which very closely resembles the itch acarus of man (*Sarcoptes hominis*, or *Acarus scabiei*). The parasite was examined most carefully by Mr. Crapp, in conjunction with the celebrated entomologist, Professor Oscar Schmidt, and drawings were taken of it, highly magnified. About fifty or sixty individual parasites were attached to one side of the bee's head, where they formed a little grey patch.—Dennler, *Editor of the 'Alsatian Bee Journal.'*

Mr. Otto Hehner, who has kindly translated the preceding paragraph, has added the following—

Note.—Until by physiological experiment, by inoculation, the identity of the above-mentioned parasite with that producing itch in man is positively established, it appears desirable to withhold definite judgment. Similarity in form by no means implies identity.—Otto Hehner.

THE HOARY LIME.

I would like to draw the attention of your readers to the importance of the Hoary Lime (*Tilia pubescens*) as a bee flower. It blows from four to five weeks after the common lime (*Tilia grandifolia*), at a time when the honey harvest is ceasing for those who are not near heather. It is a handsome tree, and is covered with most sweetly smelling blossoms. It has, I believe, been introduced into this country from North America, and grows freely in this climate.—Geo. Greer.

ARE WASPS INJURIOUS TO BEES OR NOT?

The following extract is from a Scotch paper of last year, and refers to the East of Scotland Bee-keepers' Show:—

'Wasps are far from popular, and yet the wasp byke located in an ordinary straw-skep, for which Mr. James Glen, Arbroath, has gained a special prize, is evidently drawing the greatest amount of attention. Mr. Glen took the nest, or byke, when it was but the size of a bantam's egg, and placed it in an empty skep, where it has now got to be 27 inches in circumference, with a community of several hundred wasps. The byke, with protecting glass on the bottom or floor of the skep is turned up, and as a side of the byke is cut open the visitors have ample opportunity of seeing these irritable and dangerous creatures busy in their curious domain. The process of hatching the eggs can be seen. Mr. Angus Cameron, who for two years was Queen's Prize-man at Wimbledon, one of the Judges at the Show, entertains a high respect for the despised wasps. He has one of their bykes on the top of one of his own hives at Blair Athole. He never kills wasps. They to him, and others too, are esteemed as useful members of the great community of nature. They eat grubs, insects, and caterpillars. Living on refuse, they enter unchallenged into the hives of honey-bees, clear the place of all refuse and litter, and are therefore excellent scavengers.'

Is this so? Many of the books on bee-keeping say, Kill all the wasps possible, as they are very destructive to bees.—O'S.

ANOTHER OF THE 'AUTHORITIES.'

May not the following extract from the *Phonetic Journal* of 4th October, 1884, be considered a parallel to the article in your *Journal* of 15th December, copied from the *Graphic*, under the head of 'Editorial Ignorance?'—J.

'"This is quite a treat to me, I must say," said she to Mr. Leslie, "for I have not had the chance to see bees at work in glass hives." Mr. Leslie then said, "I know the queen of each hive, who will come to me when I call her; and you shall see one of them if you please." Then she gave a call which the bees of the hive they had their eyes on knew, and a large bee soon came on her hand, and soon she was spread from head to foot with bees. She then threw up her hand, on which the queen flew off in great state with her guards round her and the rest in the rear.'—Page 474, *Phonetic Journal.*

BEE FLOWERS.

Mr. Dobbie in the December number of the *Bee Journal* stated, 'In late volumes of the *British Bee Journal* and other works on bee-culture, I do not find the common broom and the bird-cherry mentioned as members of the bee-flora.' Thinking that so common a plant as the broom and the cherry could not have escaped the notice of some of the more recent observers, I turned to the first bee-book that came to hand, viz., Langstroth. On page 298 the broom and the cherry are both noticed, although not described in botanical language. I take it to mean the whole genera. Pollen is by no means a scarce article in the average of seasons in the month of May, as bush fruits and many of our garden trees and fruits are blooming. From observation I find in my garden the Myrobella plum used for hedges, one of the earliest trees to flower, standing out in the open without any protection or shelter. Last year it was in bloom the same time as the crocus. As early-spring blooming plants to supply bees with pollen, I do not think there is anything to surpass the following,—viz., Crocus, White arabis, Limnanthes Douglasii, and Wallflowers. The three last named are to be obtained almost anywhere at a cheap rate, and their great recommendation is that they come speedily into flower, grow close to the ground, and can be cleared away to make room for something else. I do not think in the majority of country places that there is any necessity to plant or specially care for pollen-bearing plants in May; there is generally enough and to spare of that article at that season.—North Norfolk.

Fertilisation of Flowers.—Dr. E. Lewis Sturtevant says: 'Our bean crop is dependent in a greater or less measure upon other agencies than the fertility of the soil or the character of seed used. It may seem curious at

first that our farm crops should depend upon such small agencies as insects, and yet without insects to carry the pollen from flower to flower, in some species of plant we would have no seed produced. A true list of insects beneficial to vegetation should include in addition to those which are destructive to injurious insects, those also which are beneficial to the plant. The scarlet runner bean is an excellent illustration of our remarks. This bean never seems to produce seed except when the flowers are cross-fertilised; and in Nicaragua, where insects of the proper kind do not exist, this plant is said to be sterile. If there were no insects to convey the pollen from flower to flower, this species might be as sterile in our northern localities. The bumble-bee, however, frequents these flowers, and in seeking the nectar brings its head in contact with the pollen, which adhering to it is conveyed to the next flower visited, and is brought in contact with the pistil.' He also advises 'the bean-grower on a large scale, to keep a colony of Italian bees in the vicinity of his fields, for the purpose of effecting the cross-fertilisation of the flowers, and thus adding increase to his crop upon the possibility that these bees might be effective for this purpose.'—*American Bee Journal.*

Bees as Fertilisers of Flowers.—In fructifying the various flowers bees act as Nature's marriage-priests, and present us with a field of study as boundless as the gorgeous realm of Nature's bloom. But for the oft-repeated visits of the bees many a beautiful flower would in a short time cease to bloom—aye, and also to live! Many plants absolutely require the visits of bees or other insects to remove their pollen-masses, and thus to fertilize them. Hence, Darwin wisely remarks, when speaking of clover and heart's-ease: 'No bees, no seed; no seed, no increase of the flower. The more visits from the bees the more seeds from the flower; the more seeds from the flower the more flowers from the seeds.' Darwin mentions the following experiment: 'Twenty heads of white clover, visited by bees, produced 2990 seeds; while twenty heads, so protected that bees could not visit them, produced *not one seed*.' Professor Beal, of the Michigan Agricultural College, has been conducting experiments for the past six years with bumble-bees and red clover. The sixth experiment, during 1882, he describes as follows: Two fine bunches of the first clover crop, apparently alike, were both covered with mosquito netting. No insects were seen about either, except what are mentioned below. On June 29 a bumble-bee was placed inside of one netting and seen to work on the flowers; July 10, two more were introduced and seen to work, and on the 12th more were put in and observed. On July 31 fifty ripe heads were selected from each plant and the seeds carefully counted. The fifty heads on the plants where bees were excluded yielded twenty-five seeds. The fifty heads on the plant where the bumble-bees were inserted under the muslin and seen to work yielded ninety-two seeds. This is nearly four times as many as were produced by heads where the bees were excluded. In all instances, the heads were seen to be unopened when they were covered with muslin or paper sacks. In the last experiment as well as in the others, perhaps the bees did not visit all the flowers. Insects, even in the most favourable seasons, are not always to be relied on to transfer pollen enough to fertilise all the pistils. Professor W. W. Tracy has found in several seasons, where he has raised Hubbard squashes on a large scale, that he increased his crop of fruit quite largely by artificially transferring pollen with his own hand, every day or two, during flowering. To see how the uncovered heads of red clover from different plants varied in the number of seeds produced, I selected fifty heads from five plants near each other, where each had plenty of room. This was the second crop of clover. Fifty heads from each plant yielded as follows: 1260, 1275, 1460, 1485, 1820 seeds respectively. In another place, fifty heads yielded 2290 seeds, or nearly twice as many as plant number one in the lots just above noticed. It is a fair conclusion that bumble-bees are of considerable value in fertilising the flowers of red clover.

Tits and Fly-catchers.—The Rev. C. S. Millard Castock Rectory, Notts, writes:—'I am sorry to see that, your correspondent, H. F. Hills, advocates shooting fly-catchers, some of the most useful and interesting birds we have. Is he quite sure that he has not mistaken friends for foes? My own experience would lead me to think so. We have many flycatchers here, but only once or perhaps twice have I seen them paying attention to my bees. On one occasion I was much concerned to see one perched on one of my hives, then darting every minute or so to the door of the hive, and carrying off one of my bees to feed a young one which sat on a high wall at the back of the hives. I neither shot nor threw stones at them, but watched. Presently the young bird flew to the ground with the bee its mother had just given it, and I ran up before it had time to swallow a fat drone that was struggling on the ground. If it was only drones they were killing they were quite welcome to them, and I am inclined to think this was the case as the old bird seemed to single out her prey. A drone would be a much safer mouthful than a worker-bee. I have never seen tits at my beehive, but one of my parishioners tells me he has watched them tapping at the hive door and killing the bee that answered the knock.'

Strange, if true.—A gentleman, whose veracity I could not doubt, told me the following story; but although I could not disbelieve him, the occurrence seems so strange that I must confess I am so incredulous that I would like to see it before believing.—A gentleman, whom I well knew, and who had a magnificent mansion and demesne near Cork, was at the time residing temporarily on the Continent, and one of his tenants from the county Limerick came to his place in Cork, when the gardener told him that an extraordinary occurrence had taken place on that day—that the bees in every hive belonging to his master had come out, and as one swarm had flown several times round the garden, eventually clustering on some climbing plants which formed an arbour over a seat on which his master usually sat, and after remaining there some time, again rose and returned to their respective hives. The tenant told him that the same thing occurred in Limerick on the death of a lady bee-keeper; and that when sufficient time had elapsed to enable him to hear respecting his master, he would find that he had died on that day; and it turned out as the tenant had predicted. It may be consoling to some bee-keepers to think that their pets who provide them with sweets during life mourn for them when they die.—B. z, *Cork.*

A Swarm of Bees in a Chimney.—A correspondent writes from from Chatteris, Cambridgeshire, to the effect that a swarm of bees, which had been in a chimney for years at a farmstead near Chatteris, in the occupation of Mr. J. C. Smith, was successfully driven, and the enormous quantity of 187 lbs. of honey taken. Some of the combs were 3 ft. 6 ins. long by 15½ ins. wide.

Wasps' Nest.—A strong wasps' nest was taken in these grounds on Thursday, Oct. 30th. I suppose it is only another of the many proofs of the extraordinary mildness of the season.—H. E. P., *Shelfield House, Botley, Hants.*

Stings and Bites.—An old woodsman of Australia, who used to catch snakes for pastime, says that a raw onion bruised and applied as soon as possible to the wound is a certain cure for the bite of all the venomous serpents of that country, except the death-adder, which he admits is so poisonous, and its poison is so quick in acting, that there is no known remedy for it. That the onion is a specific for the sting of poisonous insects of all kinds, has long been known to the writer of this paragraph

who, when a boy, invariably carried one on expeditions with companions against hornets' nests, etc. It was found that the application of onion juice would instantly allay the pain caused by the stinging of hornets, yellow-jackets, wasps, bees, etc.—*Washington Star.*

Bees and their Work.—A lecture was given on Tuesday evening, in the Young Men's Christian Association Room, Hertford, on 'Bees and their work,' by Mr. J. P. Sambels, of Cole Green. The lecturer, by the aid of some diagrams, published by the British Bee-keepers' Association, pointed out and explained the several parts of the bee, both externally and internally, and the uses for which each was so beautifully adapted—showing the general structure, the respiration, nervous, and muscular systems, the bodily functions and secretions; and then went on to describe the production of queen, worker, and drone bees, with the cells, cell-rooms, and contrivances for strength, &c. After which the lecturer showed from the diagrams and four fresh specimens the means the Creator has provided for bees to be the fertilisers of the flowers that grow around us, so that fruit shall be produced by the agency of the bees, and that no flowers are capable of self-fertilisation. He then noted that bees are subject to several diseases, such as foul brood, &c., and referred to specimens on the table of queens, cells, grubs *in situ*, queen-bees and other objects, provided by Mr. R. T. Andrews.

Bees in a Fir-tree in the New Forest.—On the 19th of November in the New Forest near Ringwood, a nest of bees was discovered in a fir-tree. There were four combs of beautiful white wax on a branch. The branch was about half-way up the tree, and the tree was a young one. The branch was cut down, and three of the combs snapped off. The two centre combs were covered with bees in the centre; on either side both in the cells and outside: but all appeared dead. There was no royal cell attached to the combs, and the two outside combs had very few bees on them, and were white and very clean. The two inside combs were brown, but there were no eggs, or grubs, or young bees visible anywhere, only working bees. The bees were stiff and immovable, but after an hour in a warm room they suddenly revived, and crawled out of the cells.—G. S. L.

Cure of Foul Brood by Phenol.—W. J. Williams, Beechen Cliff, Bath, in a letter to Mr. Cheshire, says: 'I was surprised to see how quickly the disease disappeared, and with the lot that had it worse than the others (a stock that I formed from the others), and of which, perhaps, I took a little more care when I put them into winter quarters (about 20th October), I had a nice patch of healthy-looking brood in all stages. Allow me to return you my hearty thanks for making known such a remedy, and for the trouble you have taken in the scientific researches you are making.'

Microscopical Soirée.—Through the kindness of Mr. F. Cheshire, I was able to show at our microscopical soirée last week some of his slides of *Bacillus alvei*, and also some of the comparative anatomy of the queen, worker, and drone-bees. They not only evoked admiration, but also, I feel sure, an interest which must be healthful; and I venture to think that the same might be done in other country towns when similar gatherings occur.—Fredk. Row, *Braintree.*

REVIEW.

In the series 'Books for Young Readers,' G. Bell & Sons, of Covent Garden, have issued a book (Tot and the Cat), containing, amongst other interesting tales, one on Mrs. Bee, told in simple language. It is a capital book to put into the hands of our little ones in the various country schools as a reading-book. The habits of the bee, which are in accordance with our most recent knowledge, are narrated in an interesting and amusing manner calculated to hold the attention of children.

Echoes from the Hives.

South Cornwall, Dec. 24.—Quietness has for some time reigned in the apiary, and there have been but few sounds to echo. We have mostly wintered well in this neighbourhood, but there have been, as elsewhere, several instances of queenless hives, about some of which I have been consulted when it was too late to do anything. Ivy has been wonderfully attractive to the bees this past season, and they have visited it down to the middle of this month, excepting only during two or three brief spells of cold in November. And a pretty sight has been a dense mass of it on the top of a wall, the rich foliage supporting hundreds of delicate pyramidal spikes, many of them having no less than eight lateral umbels. Anent the fly-catchers. If those that perch on one of my bee-houses every year do not catch bees it is not for want of trying. But what of that? They must live, doubtless, though some—like Sydney Smith in another case—may not see the necessity. Besides, if every living thing that killed another were to be killed in return there would be nothing left to settle with man, the great destroyer of all. We have birds in our gardens that are far worse enemies than the fly-catchers.—C. R. S.

Langrick, 27th Dec.—What a fine seasonable winter we are having, and the bees I think are doing very well! My home apiary, fifty hives, and Anwick, thirty hives, are all alive so far, the latter stronger than the home one. —R. Thorpe.

Co. Cork, Dec. 26.—Bees all snug in winter quarters long since, having accumulated much stores off ivy, working almost continuously on it from Sept. 11 to Nov. 1, with the exception of about ten days, when we had frost and severe weather.—John J. Smyth.

NOTICES TO CORRESPONDENTS & INQUIRERS

Busy Bee.—1. *Removing Winter Packing.*—Do not remove your winter packing before March. After that time the hives will require no extra covering. 2. *Entrances to Hives.*—Your bees require more air. The entrance through the inside dummy should be 6 inches wide by $\frac{3}{8}$ inch deep. Ventilation is important, and the entrance should be kept clear of dead bees and refuse. Some colonies, however, are more active than others during the winter months, and in your case it is no bad sign. 3. *Spreading Brood.*—If brood is spread at all it should not be done too early, but the time must depend on the strength of the colony and the weather; except in the hands of an expert it is a dangerous operation, and, to the inexperienced, we decidedly say 'don't.' The constant disturbance of the bees, at a critical period, often causes more injury than advantage. See *Cowan*, p. 101. 4. *Stimulation.*—Stimulation at spring must also be used with care and judgment, much depending on the weather and the strength of the colony. When cold winds and frosty nights prevail it is often injurious. In these matters, practice and experience alone can decide the proper course, as no general rule can be laid down for all cases. A bottle-feeder, by which the supply of food can be increased or diminished at pleasure, is best for stimulating. See *Cowan*, p. 95.

Delta.—It would be preferable to move the hives in the spring the distance mentioned.

C. R. S.—*Spreading the Brood.*—Mr. Cowan in his *Guide-book* advocates spreading the brood, but recommends that it should be done with great caution. We desire to endorse Mr. Cowan's wise counsels; especially should they be borne in remembrance by all young bee-keepers. See Reply to 'Busy Bee' (5).

A Herts Bee-keeper.—*Sealed Honey.*—Sealed honey is most unlikely—we might almost say impossible—to acquire any flavour which it did not possess before sealing. It is probable, therefore, that the bees of that particular hive had found and worked upon some flowers giving honey of disagreeable flavour while filling the super. There is an alternative suggested by your words 'almost' perfectly sealed. The honey in the unsealed cells may have fermented, and if eaten with other parts of the super would spoil the flavour of the whole. Your method of keeping it seems as good as possible to adopt.

L. Brown.—1. *Floor-board.*—There is no advantage in having floor-boards double and packed, as the bees do not cluster in contact with them, and they add to the cost of the hives. 2. *Dry Sugar.*—Dry-sugar feeding offers many advantages over liquid syrup, and is well worth a more extended trial than it has at present had. Do not forget that bees cannot utilise 'dry' sugar. They must have water, which is most readily supplied in spring by placing a small piece of tin over the frames, on to which the vapour of the hive may condense.

A. Clark.—*Sections.*—The all-in-one piece V-cut sections are the best; they are as easy to glaze as any, provided, of course, separators have been used to prevent bulging of combs.

R. E. C.—The objections you name no doubt suggested themselves to the Committee on Sections. The $4 \times 4\frac{1}{2}$ would not fit a standard frame, $4\frac{1}{2} \times 3$ being $13\frac{1}{2}$, while the frames being 14 inches outside would, unless made of too thin stuff, be less than $13\frac{1}{2}$ inside. As to your objection to the vertical height of two tiers of sections being equal to (not greater than as you say) the hive side, the bottom bar of the section-frames may rest on the floor, and the top bar be disestablished altogether, the sides being hinged to the bottom bar, and held together by the excluder, or by a strip of tin along the top. Frames on this principle have been exhibited scores of times, and are to be had of all hive-makers. 2. Reply in our next.

Boz.—See reply to 'R. E. C.'

A Lady, *Rostrevor.*—Grass, weeds, or growing crops in front of hives, under the entrances, are very bad, and lead to great loss of bee life. Unless you can sacrifice that part of your lawn on which the hives stand, and lay it down in gravel or ashes, or move the hives so that for a few feet in front of them there is gravel, or at any rate, not vegetation; you can only palliate the evil by keeping the grass short. 18 inches is too high for the stands. Reduce them to 8 inches, and provide alighting boards of perforated zinc sloping down to and resting on the grass. Side slips used to be recommended when the bees were wintered in single-walled hives and on all their combs; but now they are wintered crowded together, and in warm double-walled hives they are not so necessary. If you use them, and so prevent the bees getting from comb to comb round the ends of the frames, you must provide winter passages for them.

Andrew Buchan.—*Space between Upper and Lower Frames.*—1. The usual space allowed between the upper and lower frames is $\frac{1}{4}$-inch, but some allow $\frac{5}{16}$ inch. We prefer the former, because it prevents propolisation, and does not induce to comb-building between the frames, whereas the wider space does occasionally. 2. The spaces in the zinc diaphragm excluder, in common use now, in almost all hives, will prevent a full-sized laying queen from passing through, but not unfertilised young queens—about $\frac{5}{8}$ inch.

Edward Crisp.—*Queen Introduction.*—Certainly. Let your five stocks remain as they are until spring, giving food, if required, in the shape of candy under the quilts, until the end of February. We advise you to work these colonies in their present form through the summer, and introduce Italian queens, if you then feel disposed, towards the autumn. The price of imported queens in the spring is double of that in the autumn. It is, however, easier to introduce queens at swarming time than at any other. Your proposed plan might accomplish the end you propose; but seasons vary so much in this climate that you will find the increase in the number of bees sometimes twice as great as at others. And the same may be said of 'tendency to swarm,' 'income of honey,' &c. So that no hard and fast line can be laid down.

Thos. Isaac, L. Wren, and others.—*Queen Introduction.*—If there is any fresh evidence to be offered on this subject, we shall have much pleasure in giving it insertion.

B. L. Cherry.—*Removing Hives Thirty Miles.*—1. If at any part of the journey the cart has to go over rough ground, let the combs be parallel to the axle. Let the hives rest upon a thick bed of straw. 2. Fix the frames so that they cannot swing, by screwing strips of wood across the whole, and cover the whole of the tops of the hives with perforated zinc or canvas. 3. As early as possible. Before the combs become heavy with brood and honey will be better than later.

A. B.—In the month of June, bees losing their queens would raise another; and the probability is that, even if there were no drones in the hive, she would find her mate from hives in the vicinity.

J. J. Smith.—Sparrows occasionally eat bees.

Erratum.—In Mr. Simmins' letter on the 'Width of Sections,' p. 138, nine lines from bottom, *for* 'American $4\frac{1}{2}$ by $4\frac{1}{2}$,' *read* 'American $4\frac{1}{4}$ by $4\frac{1}{4}$.'

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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

[No. 162. VOL. XIII.] JANUARY 15, 1885. [PUBLISHED FORTNIGHTLY.]

Editorial, Notices, &c.

SUGAR FOR BEE-FEEDING.

There are constant questions on this subject in the *Journal*, which show that much uncertainty prevails upon the best sugar for bee-feeding, and a few remarks upon it may therefore be useful.

Sugar for table use may be roughly divided into the two main classes of raw and refined, and the latter is, of course, chiefly prepared from the former, though white sugar is now sometimes made direct from the cane or the beet-root. Both the manufacture and the refining are intricate chemical processes, and the important thing, so far as bee-feeding is concerned, is to get a sugar which is as far as possible free from any chemicals or their results, as well as from the dyes which are freely used to make sugar bright yellow or snow-white. Arranged in order of merit for bee-feeding, various sugars might probably rank as follows:—

Raw sugars (unerystallised),
  Porto Rico.
  Barbados, Jamaica, &c.
Refined,
  Pearl Sugar (Duncan's),
  Small White Crystals.

Raw sugar in crystals, such as Demerara, &c. &c., is often dyed with sulphurous acid and with stannous oxide. Loaf sugar in all its forms, including in many cases Dutch and other crushed, contains more or less ultramarine, which is akin to washing blue; it is also more costly than other sugars, and presents no advantage whatever for bee-feeding. All white, whitish, yellow, or brown soft refined sugars, known in the trade as Centrifugals, Pieces, Greenock crushed, &c., should be studiously avoided, for they are really the refuse of the refineries and contain a quantity of salts, water, and foreign matter. Only small, white, dry crystals should be accepted from the refineries. The names of the various makers are unimportant to the bee-keeper, for whether crystals are made by Messrs. Duncan, Lyle, Tate, or Schwartz in London, or by Crosfields or Macfies in Liverpool, matters little. Let the bee-keeper seek a bright, white, dry sugar with a distinct, sparkling grain. Duncan's 'Pearl' is a new sort of sugar, like the granulated which is much used in America. It is white, and has a dry small grain. It is also to be had in seven-pound bags bearing the maker's name, which is important, as there is nothing which traders so freely misrepresent as sugar. Unless the Porto Rico, or other soft raw sugars offered in the shops, can be relied on as true to their names, either this Pearl or Refiners' Small White Crystals should be chosen. Probably soft raw sugar is really the best food for bees where it can be got, for being made in a primitive way modern chemicals are not used in it.

Starch or grape sugars are formed by the action of acids on starch or cane sugars, and the acids are afterwards supposed to be neutralised or removed. Here, again, chemicals and their results are to be dreaded and avoided. It might be thought that as invert or glucose sugars (which are other names for starch or grape sugars) are unerystallisable, that a certain amount of trouble would be saved to the bee-keeper by their use; but as they vary immensely in their constituents, the greatest caution should be exercised by bee-keepers in using them for bees.

In the above remarks so much has been said of chemicals that it may be thought that sugars in the preparation of which they have been used may be injurious for human use, but that would be far too wide a conclusion to be drawn. In the first place, human beings do not live on sugar, like our bees at certain times; nor do they store it up in cells to last over the winter, as the latter do. A large proportion of acids and dyes would be perfectly innocuous in the one case, and yet might be very injurious in the other. As a matter of fact, the proportion of these foreign matters is in any case infinitesimally small. Nor, indeed, is it by any means proved that they would be injurious even to bees. All that the bee-keeper wants is to secure as pure a form of sugar as possible, so as to avoid any possible risk.

In conclusion, there is a good deal of absolutely unfounded talk just now as to the inferiority of beet to cane sugars, when as a matter of fact they are absolutely identical in the dry refined form. No one would think of feeding bees or men on raw beet sugars, which, though handsome to look at, are nauseous and malodorous in the extreme. If beet reached the bee-keeper in the Pieces, Crushed or Centrifugals of the trade, that is, in the refuse of refining, it might be injurious from the salts and dyes such sugars contain. But if the bee-keeper buys his beet in Refiner's Pearl or Crystals, he may rely upon it that it is equal to any cane sugar

in the world. If, however, it is desired to avoid beet altogether, there is nothing for it but to buy open pan, or soft, Porto Ricos, Barbados, Jamaicas, or other old-fashioned raw sugars; or to run a remote risk with sulphurous acid or stannous oxide —the 'doctor' or the 'bloomer,' which give the splendid yellow to Demeraras and other bright grocery vacuum pan raw sugars.

GLUCOSE AND GRAPE SUGAR.

In the preceding article we have advised that caution should be exercised in the using of glucose or grape sugar in feeding bees. Glucose is a constituent of the juice of grapes, and other sweet fruits; it also enters largely into the composition of honey. When pure it is not unsuitable for bee-food: and if so used, it has been found desirable to feed bees in the proportion of three of glucose to one of syrup. In this proportion it has been found to answer the purpose; the bees take it freely, and there are no signs of crystallisation. The American bee-keepers, however, condemn its use, considering that it causes dysentery.

The following digest of an American Governmental Report on glucose will be found to contain very valuable information respecting it.

On April 27, 1882, the Hon. Green B. Raum, Commissioner of Internal Revenue of the United States, addressed a letter to Prof. W. B. Rogers, at that time President of the National Academy of Sciences.

The National Academy of Sciences is a body incorporated by Act of Congress, approved March 3, 1863, and is composed of fifty members, comprising those among the most eminent in every branch of science and of art. The Academy is a government institution, and its duty is, whenever called upon to do so by any department of the government, to investigate, examine, experiment, and report upon any subject of science or of art that shall be submitted to it.

The Commissioner's letter specified that there was then pending before Congress a Bill 'to tax and regulate the manufacture and sale of glucose,' which Bill proposed to so amend the internal revenue laws as to impose a special tax upon the manufacturers of and dealers in glucose, and to levy a tax on the article in its solid, liquid, and semi-liquid form; and the Commissioner requested the appointment of a committee of the Academy to examine as to the composition, nature, and properties of glucose or grape sugar, and its saccharine quality as compared with cane sugar or molasses; and also as to its deleterious effect when used as an article of food or drink, or as a constituent element of such articles.

The Academy accordingly appointed the following eminent gentlemen from among their number to make the desired investigation:—Chairman, Prof. George F. Barker, of the University of Pennsylvania; Prof. William H. Brewer, of Yale College; Prof. Charles F. Chandler, of Columbia College; Prof. Wolcott Gibbs, of Harvard College; Prof. Ira Remsen, Johns Hopkins College, Md.

The report made by these gentlemen was voluminous and exhaustive, and gave in detail the methods employed in making the examinations. The following extracts will show the general results attained, and prove how groundless have been the charges against glucose and grape sugar manufactured from corn, as to their healthfulness and purity, &c.

The fourth question submitted to the committee was: 'Is the use of "glucose" or "grape sugar" injurious to health?'

In reply to this the report states the results of experiments made by Dr. J. R. Duggan, of the Johns Hopkins University: 'The experiments occupied about two months, during which time Dr. Duggan repeatedly took large quantities of the extracts. At the end of the experiments, and during the entire period, his health continued excellent. There was nothing whatever to indicate that the extracts contained anything injurious to the health, and the conclusion seems to be fully justified that the samples examined by us, and which we have every reason to believe were fair average samples of the substances found in the market, contained nothing objectionable from a sanitary standpoint. In the experiments the experimenter took into his system everything that could possibly be objectionable contained in from 120 grains to 160 grains of the glucose or grape sugar, *i.e.*, from a quarter to a third of a pound. It must be borne in mind further that the extract which was taken into the stomach must have contained any objectionable mineral, as well as organic substances, present in the glucose employed. Hence, the results seem to be final as regards the injurious natures of glucose or grape sugar made from maize.'

The committee conclude their report as follows:

'Summary and Conclusion.—The results which have been obtained by the committee, and which have been presented in the foregoing pages, may be briefly summed up as follows:—

'First.—Starch sugar, as found in commerce, is a mixture in varying proportions of two sugars, called dextrose and maltose, and of dextrine or starch gum. Dextrose was discovered in grapes by Lowitz in 1792, and was first prepared from starch by Kirchoff in 1811. In 1819 Braconnot prepared it from woody fibre. Maltose was first recognised as a distinct sugar by Dubonnfaut in 1847, in the product of the action of malt on starch; no dextrose is thus produced, according to O'Sullivan. . .

'Fifth.—Starch sugar represents one distinct class of sugars, as cane sugar does the other—the former being obtained naturally from the grape, as the latter is from the cane and the beet. Starch sugar, which is a term chemically synonymous with dextrose and glucose when pure, has about two-thirds the sweetening power of cane sugar. By the action of the dilute acids both cane sugar and starch yield dextrose. In the case of starch, however, dextrose constitutes the sole final product. . .

'Seventh.—Of mineral or inorganic constituents, the samples of starch sugar examined contained only minute quantities. The total ash formed in

the "glucose" was only from 0·325 to 1·060 per cent, and in the "grape sugars" only from 0·335 to 0·750 per cent. No impurities, either organic or inorganic in character, other than those mentioned, were detected in any of the samples examined.

'Eighth.—The elaborate experiments upon the fermentation of starch sugar would seem to be final on the question of the healthfulness—not only of glucose itself, but also of the substances produced by the action of a ferment upon it. Large quantities of a concentrated extract from the fermentation, representing from one-third to one-half a pound of starch sugar, were taken internally by the experimenters, and this repeatedly, without the slightest observable effect. This result rigidly applied holds, of course, only for those sugars which, like this, are made from the starch of Indian corn or maize.

'In conclusion, then, the following facts appear as the result of the present investigation:—

'First.—That the manufacture of sugar from starch is a long-established industry, scientifically valuable and commercially important.

'Second.—That the processes which it employs at the present time are unobjectionable in their character, and leave the product uncontaminated.

'Third.—That the starch sugar thus made and sent into commerce is of exceptional purity and uniformity of composition, and contains no injurious substances. And

'Fourth.—That, though having at best only about two-thirds of the sweetening power of cane sugar, yet starch sugar is in no way inferior to cane sugar in healthfulness, there being no evidence before the committee that maize starch sugar, either in its normal condition or fermented, has any deleterious effect upon the system, even when taken in large quantities.'

CHESHIRE FUND.

We have received towards the above fund a subscription of 2*s.* 6*d.* from J. Rodham. This gives a total of 32*l.* 9*s.* The whole of the balance has been handed to Mr. Cheshire and the fund is now closed. We beg to tender our best thanks to the contributors for their kind donations.

COUNTY REPRESENTATIVES.

We hope that County Bee-keepers' Associations, at their Annual General Meetings, will not fail this year to appoint Representatives to attend the Quarterly Conferences with the Committee of the B. B. K. A. We note that the first Conference of the present year will take place on Wednesday, January 28th.

BRITISH HONEY COMPANY.

We understand that good progress has been made towards the formation of this Company. Over twelve hundred shares have been taken up since the first of January.

THE CULTIVATION AND PROPAGATION OF THE MOST IMPORTANT HONEY AND POLLEN-YIELDING PLANTS.

For the guidance of those who intend to grow honey and pollen yielding plants in and around their apiary the following cultural notes may not be out of place at this season of the year.

The plants here mentioned are all of easy culture, and have been proved to be indispensable to the provident and thoughtful apiarian.

The subject of suitable bee-pasturage is one of increasing importance, and will, I believe, in the not-far distant future, assume features that are little thought of at the present time.

Why, for instance, is the honey season over by the middle of July? Is it not possible that a profitable income of honey may not be attained by judiciously cultivating honey-yielding plants in quantity for at least two months longer? After clover and lime have blossomed what a flowerless, and consequently honeyless, appearance the fields and hedges present! The source of honey is indeed meagre. I feel sure that all this loss of the profitable application of bee-industry might be obviated and turned to good account by the cultivation of suitable plants.

Alsike Clover (*Trifolium hybridum*).—This clover is said to be a cross between the red and the white varieties. It possesses in a marked degree the well-known honey-secreting character of *Trifolium repens*. The tube also of the florets is so short that even the black bee finds no difficulty in reaching the nectar. Alsike is a perennial, and consequently does not flower (or very scantily) until the second year. Sow on finely prepared soil in March or April, at the rate of 4 lbs. to the acre, rake fine the surface, and run a roller over to press the soil firm. The first year it may be cut for hay, and by judicious mowing may be made to bloom from June to August of the second year.

Arabis alpina, known to bee-keepers as Arabis.—In mild winters this species of Arabis is often to be seen flowering in January. It is grown in gardens on rockwork and for spring bedding. Shoots torn off the old plant with a 'heel' will easily strike root in ordinary garden soil, giving shade for a few weeks if the weather is hot and dry. The best time to strike the cuttings is just after the plants have done flowering. When well rooted transplant one foot apart each way. Arabis may be also increased by sowing the seed, but this is a longer process. Flowers in February and March.

Borage (*Borago officinalis*).—Borage is a very important plant to the bee-keeper. It is of very easy culture, and blooms uninterruptedly from April to November. Bees are so fond of borage that I have known them neglect hawthorn, lime, raspberry, &c., to regale themselves in the nectar that this well-known bee-plant secretes, and this, too, not only at a certain time of the day, but all day long, 'from morn till dewy eve.' Given a moderately rich soil and a few successional sowings, the bee-keeper will have abundance of borage blossom all the summer through. The plants should have plenty of room; two feet apart each way is not too much. As it is a rather gross feeder, a good soaking of manure water will assist the plant, especially in dry weather. Its relative, the Bugloss (*Echium vulgare*), has been recommended as honey-yielding, but during my experience of it I never saw it visited by more than half-a-dozen bees, though I admit that this fact is no criterion that the plant does not secrete honey. Bees know well where the best and largest flow of honey is

to be got, and no doubt the borage close by furnished more and better sweets than the bugloss. While on the subject of bee preference I may be permitted to give another instance. Two years ago a field of mustard was in full flower near my apiary. At the same time I noticed an unusual activity among my bees, and concluded the mustard was the cause of it; but on examining the field very closely, I could not find a single bee to visit the whole field of yellow blossoms. And later, and quite by accident, I discovered that ivy was the source of the honey and pollen they were bringing home.

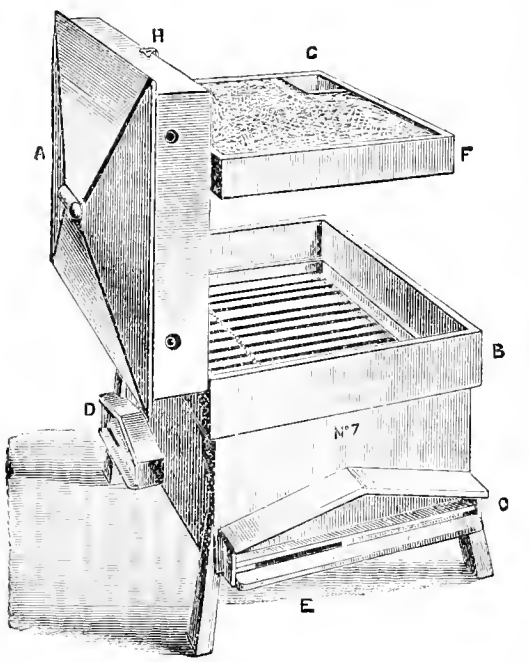
Broom (*Cytissus scoparius*) is generally sown in spring, either where it is intended to be grown or in seed beds, and transplanted in the autumn or following spring. It roots deep and flourishes on dry banks in a sunny position and on light poor soils, especially on limestone soils. Flowers in May and June.

Centaurea cyanus is an annual, and should be sown at intervals from March to May. The earliest sowings will flower in June, while the later sowings will prolong the flowering period to September. If sown in August and treated as a perennial, by transplanting the seedlings when large enough one foot apart, it will come into bloom a month earlier than the spring-sown ones.—H. Dobbie, *Thickthorn, Norwich.*

(*To be continued.*)

THE CHESHIRE HIVE.

In the Bee Department at the International Health Exhibition, the Cheshire Hive was exhibited by Mr. W. Hollands, Harrison Rise, Croydon.



In giving a brief description of this hive, we think it desirable to inform our readers that the Cheshire Hive of the present pattern differs entirely from the former one known by the same name (and for which, at the Crystal Palace show in 1874, Mr. Cheshire obtained the first prize), both in external appearance and internal arrangement. In planning it the requirements of the bees and ease of manipulation have been the principal objects in view, cost having been entirely left out of the question; although on comparison it will be found to be cheaper than many low-price hives in the market, as the first cost includes many necessaries that would have to be bought as extras in other hives. It is claimed that this hive gives great convenience to the bee-keeper, at the same time comfort and advantage to the bees. It provides for general ease in manipulation, simplicity in queen-rearing, and success in wintering. It contains twelve frames of standard size, fitted with metal ends. The walls are double thickness all round, with an interspace of one inch packed firmly with cork-dust. Some years since Mr. Cheshire conducted a series of careful experiments upon different materials in order to test their powers of resisting cold, and he then found cork-dust to give fourteen times as much protection as dead air. These experiments have led to the introduction of cork-dust by many makers. The hive is perfectly elastic, as a dummy of careful construction, also formed of cork-dust between two layers of wood, admits of any number of frames being used.

During winter, or indeed at all times when the super is not on the hive, the frames have placed over them first a quilt of Hessian, and then the chaff-tray, figure F in the illustration. This tray has a bottom of Hessian, and contains 3 inches deep of chaff, which gives the bees most perfect protection.

If the stock using the flight-hole E require feeding, the chaff-tray is turned round, when the feeder placed in F will stand on the frames, and it should be noted that by this arrangement the necessity for cutting holes in the quilt is done away with, as all that is necessary is to turn the corner of the quilt back

The rim of wood B gives great protection in manipulating in windy weather. The roof A, of ornamental form, is carefully covered with zinc, which is so arranged that it is everywhere free, and cannot buckle or tear by contraction or expansion, while leak is impossible. Indeed the roof is so fitted that it is not only bee-proof, but defies the entrance of earwigs, except those small enough to pass through the perforated zinc at the ventilation holes. A chain stops the roof at a right angle, so that it affords ample table room for necessary tools, such as smoker, &c., while manipulating. When the roof is shut the fastening H acts automatically, and prevents the possibility of wind lifting it, while a padlock may be added at the owner's discretion. The porches are fitted with the simple but most effective device known as the Cheshire anti-robbing porch. The roof affords ample room for two tiers of section-boxes, but then the chaff-tray must be removed; but in using one crate of sections only the chaff-tray would be placed over it, having the effect of husbanding its heat at night. The section rack contains twenty-one boxes, and the separators are so divided that one line of boxes can be manipulated independently of the others, and by the aid of the new dummy sections the bees can be admitted to one line of sections at a time—an advantage of immense assistance to the honey raiser. Between the lines of boxes, finger space is given, and by a neat arrangement it is impossible to put in the boxes out of square. The rack lits on the metal ends of the frames, so obviating all piecing and trouble with bits of carpet or other like annoyances.

For producing extracted honey a doubling box is recommended, and for this the roof is made sufficiently deep. This box has the bottom entirely of excluder zinc, with bee space both above and below it, doing away with propolisation, and by a neat arrangement any number of frames from one to nine may be used at once without losing heat, or having placed one frame of brood in the doubling-box sections may be added, for which purpose, and also for use in the body of the hive, a wide frame of new and simple construction is provided.

The second porch is intended for queen-rearing on the nucleus plan, and to do this without alteration in the size of the frame is now found to be in all respects the best, and in this hive it is made most simple. The stock

is divided by placing two frames of bees and brood behind the dummy and turning the hive partly round.

This hive, made of thoroughly seasoned pine, protects the bees from summer sun or winter frost, and is wintered by simply reducing the number of frames as may seem needful. It entirely obviates all need of carpeting, the failure of the fit of which causes the loss of many stocks during the severe frost, while the simplification and increased tidiness makes the work of the operator both less and more pleasant.

IMITATION THE SINCEREST FLATTERY.

TABLE FOWLS.—The statements made in the Rev. W. J. Pope's letter a fortnight ago are such as I can accept without hesitation, but it will not be by letter-writing that the necessary change will be made. Two or three years ago I advocated in the pages of the *Live Stock Journal* the formation of a society on the lines of the *British Bee-keepers' Association*, with the object of dealing with the poultry question from an economic point of view, gathering and tabulating all details as to races, fecundity, suitability to soils and districts, &c. But with the exception of Mr. Pope and a lady no support was given to the proposal. What we want is to deal sectionally with the farmers and cottagers of this country, to have lectures and lessons given in every village and country town; and if clergymen and others with influence and education would do what they can in their own districts, then we should soon find a different state of affairs. A society like that suggested might work through country branches, and, by means of popular lectures, teach farmers, farmers' wives and cottagers, not merely the best methods of rearing and keeping fowls, and the best kinds to keep, but also how to fatten, dress, and properly prepare them for the market. An exhibition of dead poultry, such as can be seen at Paris every year, or even like that at the Halles Centrales every Saturday morning, would be a revelation to English housekeepers, but there is no reason why it should not be equalled here. If any readers of *The Agricultural Gazette* can arrange to be in Paris and visit the show which will open there on February 7th next, they will witness a sight never to be forgotten, and one which I hope may ere long be seen this side the Channel. —EDWARD BROWN.

LECTURE ON BEE-KEEPING.—A lecture on 'Bees and Bee-keeping,' illustrated with diagrams and models, was delivered by Wm. N. Griffin, Esq., hon. sec. of the Devon and Exeter Bee-keepers' Association, on Friday, January 9th, at the St. John's School-room, Weymouth. The chair was taken by the Rev. Canon Stephenson. There was an appreciative audience and much interest shown.

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

Quarterly Conference of County Representatives at 105 Jermyn Street, on Wednesday 28th inst., the following subjects will be discussed:—

(1.) The proposed rules for the guidance of Judges in awarding Prizes to Honey.

(2.) The proposal for teaching practical Bee-keeping in Schools as an elementary science.

(3.) The Collection of Statistics relating to the Honey Industry.

The Annual General Meeting of the Members will be held on Feb. 11, under the Presidency of the Baroness Burdett-Coutts, President of the Association.

WORCESTERSHIRE BEE-KEEPERS' ASSOCIATION.

The annual general meeting of the above association will be held at the Guildhall, Worcester, on Wednesday, January 28th. The chair will be taken by the Earl Beauchamp, President of the Association, at 3 p.m.

CHESHIRE BEE-KEEPERS' ASSOCIATION.

The Exhibition held at Northwich on 13th September last, though favoured with fine weather, and a good number of exhibits of excellent quality, did not prove such a financial success as was expected from its being held in connexion with the Cheshire Agricultural Society.

Mr. Brean, of Manchester, officiated as judge, and the principal prize-takers were Mr. Hewitt, High Leigh, Mr. Cotterill, Bowdon, Mr. Franks, Bowdon, and Mr. Cookson, Sandbach, in the open classes; whilst foremost in the cottagers' classes were Mr. Stocks, Winsford, Mr. Hewitt, High Leigh, Mr. Franks, Bowdon, and Mr. Nicholson, Bowdon.

The Altrincham Exhibition has usually been the most successful of the Association's Shows, owing, no doubt, in great measure to the fact of its being the centre of the district in which the Association commenced its labours under the title of 'The Altrincham and Bowdon District Bee-Keepers' Association,' afterwards changed to present title at the instance of the B. B. K. A. The exhibition there held on 26th September last fully carried out the expectations raised by the income of the numerous entries and quite eclipsed all preceding Shows in the three important factors to a successful show—of quality, quantity, and finance. In various forms 1200 lbs. weight of honey was staged, varying in colour from clear amber to nearly black. In class 10, for best exhibition of from 12 to 30 lbs. of run or extracted honey in 1-lb. glass jars, and for which were nine entries, the task of judging must have been the reverse of easy or pleasant. The awards in this class were—1, Mr. J. Littler, Fir Bank, Frodsham; 2, Mr. R. Andrews, Hill View, Frodsham, and 3, Mr. G. Stocks, The Apiaries, New Road, Winsford.

The Silver Medal of the B. B. K. A. was awarded to Mr. Cotterill, Malvern House, Bowdon, for best exhibition of honey in sections. The collection of bee furniture exhibited by Mr. E. G. Parker, of Bowdon, was a most comprehensive one, and though not opposed to any other collection, was highly deserving of first honours as awarded to it. Mr. Parker also exhibited some beautifully finished 2-lb. sections, and a large observatory hive containing six combs, all well stocked with bees, for which in each class he carried off the premier prize. Other exhibits deserving especial mention were the super of glass and wood exhibited by Mr. Broughton Carr, of Higher Bebington, and the glass super of Mr. Hewitt, High Leigh, Knutsford, both first-class productions. In the class for any invention furthering the culture of bees Mr. Nicholson, of Bowdon, was awarded the Society's certificate for a 'skep-union,' an article intended to facilitate the driving of bees from one straw skep to another.

The prizes offered and the awards were as follows, viz.: —For best exhibition of honey in sections—Mr. Cotterill, Malvern House, Bowdon. English bees—Mr. Franks, Bowdon. Foreign bees—1, Mr. Cotterill; 2, Mr. Parker. Best observatory hive—1, Mr. Parker; 2 and 3, Mr. Nicholson. Bee furniture and appliances—1, Mr. Parker. Glass super—1, Mr. Hewitt, High Leigh, Knutsford. Super of wood, glass or straw—1, Mr. Broughton Carr, Higher Bebington; 2, Mr. Hewitt; 3, Mr. Franks. 1-lb. sections—1, Mr. Franks; 2, Mr. Stocks. 2-lb. sections—1, Mr. Parker; 2, Mr. Hewitt. 1-lb. glass jars of

honey, prizes awarded as mentioned above. 2-lb. glass jars of honey—1, Mr. Andrews, Hill View, Frodsham; 2, Mr. Cotterill; 3, Mr. Franks. Best exhibition from one apiary—1, Mr. Cotterill; 2, Mr. Parker; 3, Mr. Stocks, Winsford. Mead, &c.—2, Mr. Nicholson. Invention—2, Mr. Nicholson. Comb foundation—1, Mr. McNally, Glentree, Wigtonshire; 2, Mr. Parker. Honey extractor—1, Mr. Cotterill; 2, Mr. McNally. Beeswax—1, Mr. Cotterill; 2, Mr. Parker. Open driving—1, Mr. Cotterill; 2, Mr. Franks; 3rd, Mr. Bailey, Vicarage Lane, Bowdon. In cottagers' class for English bees—1, Mr. Goulden, Vicarage Lane, Bowdon; 2, Mr. Bailey. Glass super—1, Mr. Franks; 2, Mr. Goulden; 3, Mr. Hewitt. Super of wood, glass, or straw—1, Mr. Stocks; 2, Mr. Nicholson. Straw super—2, Mr. Nicholson. 1-lb. glass jars of honey—1, Mr. Stocks; 2, Mr. Nicholson. 2-lb. glass jars of honey—1, Mr. Stocks. 1-lb. sections—1, Mr. Stocks. Mr. Carr, of Newton Heath, Manchester, officiated as judge of exhibits and also of the driving competition, for which there were six entries, and at the close of which Mr. Carr must have felt glad that his arduous day's work was over.

OXFORDSHIRE BEE-KEEPERS' ASSOCIATION.

The annual meeting of this Association was held in the Clarendon Hotel, Oxford, on Monday, January 5. Among those present were the President (the Earl of Jersey), Colonel Blunt, the Rev. F. C. Dillon (Enstone), Secretary, and Rev. W. Neame; Messrs. Studderd (Banbury), W. Grant (Oxford), C. Taylor, Morris, T. Rowles, Hill, E. Cobb, Watts, Husbands (Northleigh), W. Hayes (Chipping Norton), and the experts' Messrs. Cobb and Perry.

The Secretary read the financial statement, which showed that the Society had started their work last year with a balance in hand amounting to 24*l.* 18*s.* 9*d.* They had received in subscriptions 25*l.* 1*s.*, and these, with other items, made up a total of 68*l.* 15*s.* 8*d.* The expenditure for the year had been 74*l.* 19*s.* 5*d.*, which shows an apparent deficit of 4*l.* 3*s.* 9*d.*, but in explanation of that, it should be mentioned that they had bought a tent which cost over 2*l.*, and that item of expenditure, of course, tended to place the balance on the wrong side of the ledger.

The Secretary also read the annual report, and the reports from the experts, Mr. Perry and Mr. H. Cobb. The arrangement of the tours was for the present year left to the committee.

The Vice-Presidents were elected as follows, Sir Henry Dashwood having been added to the list:—Sir Henry Dashwood, the Rev. Canon Ashhurst, J. Mason (Ensham Hall), Colonel Blunt, the Hon. Mrs. Brassey, and Mrs. G. Herbert Morrell (Headington Hill Hall).

It was unanimously agreed that the committee of last year—the local secretaries—should be re-elected, but as the Secretary thought it was too small, the names of G. Herbert Morrell, Esq. (Headington Hill Hall), Mr. Studderd (Banbury), and Mr. W. Grant (Oxford), were added. The Committee therefore stands thus:—G. Herbert Morrell, Esq., Headington Hill Hall, Rev. W. Neame, Forest Hill, Oxford, Rev. W. E. Ivens, Brize Norton, Oxford, Mr. Studderd, Banbury, Mr. J. Perry, 5 Bridge Street, Banbury, Mr. H. Cobb, Dorchester, Wallingford, Mr. W. C. Hayes, Chipping Norton, and Mr. W. Grant, Oxford.

On the motion of the chairman, the Secretary (the Rev. F. C. Dillon) was unanimously re-elected.

The Annual Show.—After some discussion, it was agreed that the Committee should endeavour to prevail upon the Horticultural Society and Mr. G. Herbert Morrell to allow the Society to hold their annual exhibition on the same day that the autumn show of the Horticultural Society took place in the grounds of Mr. Morrell.

Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

SIZE OF SECTIONS.

I am surprised at the B. B. K. A. adopting the 4¼ by 4¼ section to be the standard. I should have thought (the same as yourself, see *B. B. Journal*, vol. xii., page 194) that they would have adopted the one that fits best into the standard frame, viz., 4 by 4½; this size is also better for working on the top of hive, as three sections, in a rack of ½-inch wood, measures 14½ inches, just the width of hive, and so saves putting strips of carpet or wood on to keep bees in. Neither do I think it fair to exclude those who do not use the 4¼ by 4¼ section from competing in the coming show at Preston. They cannot expect persons will go to the expense of new crates, racks, &c., and adopt again the sections they have discarded because they were not so convenient as the 4 by 4½.

I hope the B. B. K. A. will rescind their resolution and allow the 4 by 4½ to compete as well as the 4¼ by 4¼ in the show at Preston.—John Bull.

A STANDARD SECTION.

It is surprising that the Association has decided to adopt the American 1-lb. 4¼ × 4¼ section as the 'Standard' for this country.

In the first place, the Association has done its best to establish the Honey Company, which is to deal in none but British honey, and yet, strange to relate, British bee-keepers are to be compelled to produce their honey in a form which will at once stamp it as being of American production.

Presumably, this size and shape have been selected because they have been so generally used, and can be obtained in larger quantities and cheaper than any other. Nevertheless, I am quite sure some of our own enterprising manufacturers could at the same, or a lower price, turn out the 'British' section, if one could be decided upon, and should it be understood that the American pattern would not be accepted.

One plea put forth in favour of the 4¼ × 4¼ section is, that it fits the Standard frame, and yet, as a matter of fact, it does *not* fit the same, however arranged; and this is conclusively shown by the fact that those who have made the above statement at the same time recommend a section frame with no top bar, and even then the bottom rail of this, it is admitted, must rest on the floor-board.

It is time this inconvenient error was corrected, instead of being blindly ignored as at present: and if a special frame has to be used under present conditions, a special and more convenient one could surely be worked with a new and more correct pattern of section.

It is well known that the 4¼ × 4¼ section does *not* hold 1 lb. when of the usual width for separators. Why, then, has the Committee decided to retain it? With dividers the 1 lb. section should be 4⅛ × 4 inside, instead of barely 4 × 4 as at present.

The new size now proposed should be 4⅛ deep × 4⅛ wide (bare) outside, with rim ⅛ thick, to work with proper 'Standard' arrangements. A simple section frame to hold them in sets of six would then be required thus: upright ends 2 × 8⅛ × ⅞ thick; bottom rail 2 × 14 × ⅞, and no top bar: legs and separators to be arranged as usual. Without dividers use same dimensions, except

that sections and frame must be only $1\frac{3}{4}$ wide. Of course the $\frac{1}{4}$ thickness will be considered too weak by some; but, nevertheless, with the corners secured by thin tin plates this arrangement will last a lifetime.—S. SIMMINS.

DRY SUGAR FEEDING.

'Beeswing' (inquiry, p. 13, vol. xiii.) will find that the moist (so-called) varieties of refined cane sugars will be utilised by the bees, but being so deficient in saccharine matter, they are not to be compared to genuine Porto Rico, which has more heat-producing properties, and in the breeding season is very much more stimulative.—S. S.

SIMPLICITY IN BEE-KEEPING.

There is little doubt but that the number of bee-keepers would be greatly increased, especially among our peasantry, were it not for the time, trouble, and expense attending the present elaborate method of apiculture. I have kept bees long enough to know that there is a vast amount of what, for want of a more polite term, I must call 'humbug' about it. Take, for instance, the *humane* theory, the advocates of which shriek with indignation at the bare mention of the instantaneous destruction of bees by sulphur. I am afraid I must be a very Herod in cruelty, but I fail to see there is anything necessarily cruel in either the custom or the process; unless we admit that man is a providential arrangement for the convenience of bees (and hive-vendors), and not bees for the profit of man. If you require the labour of the bees the following summer, preserve them; if not, unless you unite or give away, kill them instantaneously. In any case they will have ceased to exist in a few months. Man, in order to live, kills in every direction.

But we may admit the *humane* theory, and yet think it very cruel on the part of its advocates to sell to a poor, confiding, and benevolent country parson a hive costing any sum from thirty shillings to five pounds, when one a sixth or a third of the price would do not only as well, but better for the purpose required. Is it not time that some one should raise his voice against the present system of lauding these expensive hives, supplied with all the resources of civilisation and of science—walls double on all sides, walls filled with non-conducting substances, walls filled with dead air; all these and many other details which are actually of no value in *practical* bee-keeping, if not a positive hindrance? And so on all down the long list of imaginary necessary appliances. What can be more discouraging to any one contemplating bee-keeping than to behold the endless array spread before him by the rival hive-makers? Well may such an one be dismayed, and the cottager cling to his simple skep, the sight so familiar to us at our flower shows. And yet, the greater the number of articles displayed the greater the probability of a prize! The whole principle is wrong. I can obtain as much honey, and keep my bees in as good health, in a bar-framed hive consisting of four pieces of wood, a bottom board, a tall, flat, or sloped cover, and a piece or two of old carpet, as in an elaborate affair supplied with thermometers, porches, grooved alighting boards, glass windows, zig-zag entrances, snow-dazzling preventers, nadirs, collaterals, lightning conductors, electric lights, warming apparatus, scientifically applied legs, 'thus increasing their base,' hinges, knobs, buttons, wedges, hinges, reversable bottoms, and all other improvements, 'the result of exhaustive experiment,' which produce, of course, splendid seasons, an abundance of honey, enormous profits, at least 'seventy pounds a-year;' and, above all, reducing to a minimum the risk of crushing a bee,—pleasure, science, profit, crowned with benevolence. Who would not be a bee-keeper in this latter part of the nineteenth century?

But seriously, can we wonder that our converts among the class the B. B. K. A. is supposed especially to benefit (and really wishes to), are in number about—well, the quantity of acres possessed by the members of the Land Reform Association and the followers of Henry George? Why, that indispensable article, the smoker, cannot be obtained under 4*s.* 6*d.* and 6*s.*, and half of these so-called smokers extinguish themselves promptly the moment they are set down. I verily believe could our Association place within reach of the cottager a smoker that would smoke—an important qualification—for 2*s.* 6*d.* or 2*s.*, more practical good would be done to increase bee-keeping among our cottagers than by hundreds of prize-rewarded displays of multifarious appliances. So, again, with feeders. What a trouble and expense they are: and the process, too, of making syrup and supplying it to the bees. This is the advice given in a recent number of this *Journal*: 'Feed early in March with thin syrup, into which the white of one egg and the yolks of two have been beaten up into each gallon, and a pinch of *saltpetre* added. Before going to a hive take a teaspoonful of honey into the mouth [not the eye, mark], and *slowly* swallow it [notice the *slowly*], allowing it to mix freely with the saliva. N.B.—Be careful to wipe the lips well after.' How delightful! Who would not be a bee-keeper and swallow a teaspoonful of honey in the mouth slowly, allowing it to mix freely with the saliva, every time he went to a hive? How many teaspoonfuls of honey must, say, our friend Abbott swallow in a July day. It is this custom, possibly, which accounts for the sweet-temperedness of bee-keepers in general, and of one or two in particular. All this is very nice, but as a practical bee-keeper I simplify matters wonderfully, as described in a former issue, by rarely using a feeder at all, although I have a fair collection of them. But as I have already sadly trespassed upon your space, Mr. Editor, I should like in some future number, with your permission, to relieve my feelings upon other points connected with bee-keeping. In the meantime, I would say to all beginners, to whom my remarks are chiefly addressed, Don't buy expensive hives, feeders, veils, racks, syrup-cans, comb-boxes, comb-holders, excluding-zinc, cutters, foundation fixers, robbing preventers, drone-traps, magnifying glasses, confectioners' handbooks, tool-chests, evaporators, honey ripeners, indiarubber gloves, or sting lotions. They are as necessary for successful bee-keeping as the wearing of the Argosy brace—have as much to do with it. Half of the things enumerated are obsolete, the other half unnecessary. All you want, until you get your honey, is a good smoker, a cheap veil, simple, inexpensive hives with broad-shouldered frames—eschewing metal-ends and distance-pins—wax foundation to use sparingly, and, above all, the *Journal*—it affords amusement at all times, and sometimes instruction.—J. P.

[We think that our correspondent is too hard upon the hive-vendors. We are not aware that they act differently from other tradesmen. They simply supply the public with what they ask for, and their prices vary according to the quality of the goods which they offer. When cheap hives are exhibited at shows, the general remark is that the prices are too low, that the hives cannot be made for the money. If purchasers require finish and good workmanship in the hives they buy, they must of course expect to pay for it. We do not agree in all respects with our correspondent; but we shall always be happy to insert his letters, which, as he says of our *Journal*, if not instructive, are certainly amusing; and we must leave it to the hive-manufacturers to take up the cudgels in their own defence. We are glad to see that our old friend 'John Peel' has become a Justice of the Peace.—ED.]

QUEEN INTRODUCTION.

While the advanced bee-keeper regards queen-introduction as an easy matter, there are others look upon it as a difficult operation, possessing only two or three hives of English bees, they desire to introduce a Ligurian queen; they are most anxious to succeed, but lacking experience, they often fail; my desire is to help such. I give no mode of operation except such as I have tried with success. I am favourably situated for trying experiments, keeping from twelve to fifteen hives close to my workshop, expressly for raising queens and trying experiments; they are continually under my eye, and I can examine a hive several times in a day when necessary. I have tried every method of queen-introduction that has come under my notice either in the English or American bee publications. I continue to follow no one except I prove his plan worthy of adoption, and I am ready to lay hold of a new idea from any one if I think it worth a trial. I don't care whether he has been a bee-keeper twenty days or twenty years, neither do I care whether he is a scholar or not, if I can learn anything from him he serves my purpose. I lay no claim to originality, any one is welcome to that honour, if I get the benefit of it. I try some experiments very carefully to be satisfied whether I can recommend them or not as the case may be. As a rule I am very careless when introducing queens into my own hives; in fact, one might truthfully say that I am sometimes reckless, yet for the last two years I do not remember a single failure, although I have reared and introduced a good number of queens. There are some things I would advise a novice not to do:—

1st. If you are changing a queen do not take the old one away until you are ready to introduce the new one, or they may commence queen-cells which will increase the difficulty.

2nd. Never introduce or liberate a strange queen in the daytime if you can avoid it; bees are not so likely to ball a queen at night as they are in the daytime.

3rd. If you wish to try direct introduction, by no means do it in the day, but at night about the time of sunset; this, I fancy, is the rock on which many have split who tried the direct introduction and failed.

For a novice who has the time, I can with confidence recommend the following method:—Make or procure a cage of wire-cloth to hold a brood-frame; select a frame containing some honey and brood near hatching; sweep off the bees, and put it in the cage with the queen you wish to introduce, close it so that no bees can find their way into the queen; as the brood hatches the young bees will attend to the queen, and she will soon deposit eggs in the empty cells. The queen will take no harm if she is confined thus for a week, during which time a quantity of bees will be hatched and eggs also; if the bees in the meantime should build queen-cells, I would keep her confined until most of them are sealed over, for this reason, after the queen-cells are sealed over they are looking for and expecting a queen. To liberate the queen and bees, one side of the cage must be made so that it can be taken away; in the evening open the hive quietly and slip the fastening of the moveable side, so that the bees can pass in and out to the queen, the next morning the cage can be taken away; this is a safe way for a young beginner to introduce a queen.

For replacing a queen, the following method has never failed with me: get two common cages of the same size made of perforated zinc about 1 in. × ⅓ in. × 4 in. long; catch the old queen during the day and place her in one of the cages, cut a small hole in the quilt that will allow the cage to pass through and hang between two frames in the centre of the brood-nest, be certain there is food that the queen can reach—I have known more than one queen starved to death while caged—in the evening put the new queen without bees in the other cage, quietly draw out the cage containing the old queen and replace it with the other, leave it undisturbed for twenty-four or forty-eight hours. *At sunset, not earlier*, draw out the cage very gently, stopping the hole; give the bees a good smoking in the mouth of the hive, open the cage close to the mouth of the hive, and let the queen run in, smoke again and leave them. I send the above expressly for the young bee-keeper. I do not presume to instruct the advanced bee-keeper. When I have time I will give some of my experiments in queen-raising during 1883-4.—L. Wren, *Lowestoft*.

WASPS INJURIOUS TO BEES.

The question of 'O. S.' on p. 15 reminds me that a quarter of a century ago a writer in a scientific periodical that I have before me as I write defended wasps as being harmless to bees, because he had once introduced a bee into a wasp's nest, and the bee had come out safely. It is astonishing how these old exploded absurdities crop up again from time to time. The gentleman to whom I refer kept no bees, but had wasps in hives for several years in succession in order to observe their ways. Had he kept bees, and expected honey or swarms, he would, unless his wasps were of another species than those I have known all my life, have had another tale to tell. Over and over I have seen bees attacked at the flight-hole and stung to death, and the same wasp do this several times, till at last she was grappled by two or three bees at the same time, when she received her doom. When this goes on for a few days, the stock is soon weakened, and as the wasps are at it late and early, the bees get disheartened, and cease to defend their stores, which quickly fall a prey to their yellow enemies. More than once I have observed hives cleared of every particle of honey by wasps in a fortnight. And with greatly reduced numbers, and no honey, it does not take long at the close of the autumn, which is the time wasps are most troublesome, for a stock to be extinguished.

Eight years ago I was a good deal plagued with wasps interfering with my bees, but now I never am; and I attribute this freedom from depredation to making it a point for the last seven years to watch for and kill the queen-wasps in spring. I and my family catch them with a butterfly-net when they come to feed and gather building material on the Cotoneaster on front of my house, and on the gooseberry and currant-bushes when in flower, to which they are very partial.—H. W. Lett, *Ardmore Glebe, Lurgan, Ireland*.

ARE WASPS INJURIOUS TO BEES, OR NOT?

This question having been raised in your last issue, and the complaints as to wasps in some localities having been loud and deep during the past summer, it may be interesting to quote from one or two reliable experiences. First—a gentleman of some note in the bee world writing to me in September last, when speaking of wasps, says: 'It takes all my time to keep them from my bees—I lost one stock entirely—the wasps came in such numbers as to overpower the bees, and the brutes legged and winged the bees and carried their bodies away. On the floor-board I gathered up nearly half a tea-cup full of wings and legs.'

It having devolved upon me to collect and tabulate the bee census returns for this county, the following lamentations have also reached me.

A gentleman writes (referring to a parish a few miles from Plymouth): 'A wail has gone up from the hearts of all bee-keepers there,' and proceeds to say: 'July 1st I had thirteen good strong hives doing well; November 1st I have one; cause—wasps. As soon as the varmints enter a hive they have (it appears to me) the same effect as that of a ferret in a rabbit-warren, and skedaddle is the hue-and-cry of the rightful occupiers.'

He has further sent me a list of fourteen bee-keepers, including himself, who owned forty-eight stocks, thirty-one of which were known to be destroyed by wasps, and he believes there are many others about which he has not yet been able to get information. The next heaviest loser to himself was the owner of ten stocks, and he has lost nine.

A lady, writing from the same neighbourhood as the above, adds on her report: 'Wasps have killed many swarms.' I have no doubt that experiences of the same nature, if not quite as bad, have been common during the past summer. I have not myself suffered, but I have found and destroyed, or caused to be destroyed, a great number of nests on all sides of me, and to this I attribute my freedom from misfortunes similar to those reported, as the wasps were getting unpleasantly numerous prior to the strong measures taken against them.—A MEMBER OF THE COUNCIL, *Devon and Exeter Bee-keepers' Association.*

A DIFFICULTY IN OBTAINING A BEE CENSUS.

I send you the enclosed for the *B. B. J.* Men, and good men too, recognise the difficulty of dealing with the labouring classes in some of the more enlightened home counties. I should like them to extend their experiences to such out-of-the-way, benighted spots as are to be found in the wilds of North Devon, where superstition is rife, where, when anything goes wrong, it is commonly put down to being 'ill-wished,' or the 'evil eye;' where the parson is looked upon as a 'white witch,' with bees, and is consequently forbidden to come into gardens where the bees are kept, simply because he is an advanced bee-keeper, and can handle bees.

A CASE IN POINT.—It has frequently been pointed out how much care is needed when trying to render assistance to cottagers with their bees, and it is an undoubted fact (more particularly in this county) that they generally think that you have an ulterior motive, or have in some way a selfish interest, when your object is solely their good. When collecting information for the bee census a short time since, which it is needless to say is gathered at some expense and trouble for the furtherance of the cause, a woman was, to the best of her ability, giving the information sought, when a man passed and said, 'Don'tee tell 'em no more, missus, they'll be going to tax they bees.' Need I add that the woman, as the Yankees say, 'dried up;' not one word more could be got out of her, and their peculiarly suspicious natures having once been worked on, further attempts in the same neighbourhood have proved equally unsuccessful.—ONE OF THE COUNCIL, *Devon and Exeter Bee-keepers' Association, North Devon.*

BEE-KEEPING IN SCOTLAND.

I have pleasure in furnishing 'J. H.' with a few particulars to prove the accuracy of my statement to the effect that Scotland was, and is, still behind our English friends in the matter of practical bee-keeping. It seems evident, however, from the tenor of his letter that his anxiety is not so much for this information as it is to display a vindictive opinion towards a gentleman whose name is universally respected as a true pioneer wherever modern bee-keeping is successfully carried on. If the statement he makes is correct as to there being a 'Legion' of Scotch heroes, the query is, Where are they, what have they done, or what are they doing, to make bee-keeping a national industry? It is easy to point to our English friends on this matter, and compare their self-sacrificing labours in nearly every county in order to instruct, encourage, and assist even the poor cottager in what was at one time the mysteries of the bee-hive; while some of the few heroes which in our famous land I have heard boasting of thirty and forty years' experience, and yet within a mile of their apiaries there are those who have never seen the interior of a bee-hive.

Again, 'J. H.' puts no reliance on Shows, and yet he points out with self-satisfaction to a time when Exhibitions were few and competitors rare, and compares those times to the present, when Exhibitions are being held over the whole country, at which professionals and amateurs have full scope for all their abilities; even on this point also our English veterans take the lead in setting us a good example, as we find they never scruple to compete with all comers, while, alas! our 'Legion' of Scotch heroes seem content with the laurels they have gained in the past. At the same time, as was shown at the recent Edinburgh Show, where fair competition does take place, the old apiarians seem to have had very little to boast of. True, in one or two classes they succeeded with bee furniture alone, which would in all likelihood have been passed over in some of the small English County Shows: and it is well known that serious objections were afterwards made regarding the judges and the methods of judging these same exhibits, while at the same time the honey exhibits were, as they ought to be, the sight and the success of the Exhibition, and, best of all, the competition was keen, and some old apiarians honestly stated that they were unable to compete with the prize-winners on that occasion. All honour to those Scotch bee-keepers who have assisted in making the Caledonian Apiarian Association a success, for through its efforts and the assistance of our English friends the monopoly which would have hid under a bushel such inventions as comb-foundation, and even the quilt, has been broken, so that every Scotch amateur can now successfully compete anywhere. This we consider another very important advance in Scotch bee-keeping during the past ten years. So long as this important industry has been kept back by individualism and, perhaps, a little jealousy, successful progress was impossible; now that we have such a successful institution as the 'Caledonian,' and a gentleman as secretary who has done more towards the diffusing of bee knowledge throughout Scotland than all the veterans who have ever as yet made an appearance, we are sure to continue advancing, but this progress is not ten years old yet. In conclusion, I trust the day is not far distant when the amateur bee-keepers of Scotland will suitably acknowledge the services of Mr. Bennett, as it is well known that some of the old apiarians suggested such a thing some time ago; but I am afraid that, like some of the inventions referred to, the idea will be laid aside until some others step in and take up the matter with all the due consideration necessary for its success.—J. A. B.

BEE FLORA: FRENCH HONEYSUCKLE.

Among the list of bee-flowers spoken of in the *Bee Journal*, I have not seen the French honeysuckle spoken of by a single correspondent. I happened to raise some half-a-dozen plants from a few seeds I came across by chance, and was very much pleased with the results of my experiment (as I only planted them as an experiment); but I have now added them to my stock of bee flora. When in bloom the plants were continually black over with bees. There were two or three species of small wild bees, the large humble bee, and the hive bees, all working together, taking not the least notice of each other, and losing no time in collecting the sweets from those plants. I watched some of my bees come from the hives, and after visiting the flowers for a short time return in a very heavy condition. As well as being a first-class honey plant, it is a very pretty one, and deserves to grace every flower-garden with its presence. The flowers are of a splendid scarlet and white colour, and when once planted there is no more trouble with it, and it blooms for about six weeks. I should very much

like bee-keepers to give this plant a trial, feeling sure that if they did it would well repay them. As I collected a quantity of seed, I will send to any address 300 seeds, all warranted carefully collected, on receipt of three penny postage stamps to cover the cost and trouble of sending. As I have only a limited quantity of seed, I should be glad if purchasers would send soon. Directions sent with each packet of seed. I may add, that the above plant grew at the side of a bed of borage; but it was the greatest favourite with all the species of bees I saw visiting it.—W. Hollins, *Tillington Avenue, Stafford.*

JAMAICA BEES.

In the sixth volume of the *Naturalists' Library*, dated 1840, and edited by Sir Wm. Jardine, there is a paragraph stating that the Jamaica honey-bee in size and colour so strongly resembles the European as to suggest the probability that it is the same, the only circumstance, and that an *important one*, raising a doubt of this identity being that though the former possesses a sting it seldom uses it, and is apparently of a much less irritable temperament than ours. So reluctant, indeed, is the insect to use its sting that it was thought by some to be stingless; and as a proof of this greater gentleness the apiary is in many cases situated directly in front of the dwelling-house, in one instance, consisting of not less than fifty hives belonging to a gentleman at Savannah-la-Mar, ranged close by the door and under the front windows. Were the exotic insect as testy as ours, visitors would require some nerve to face coolly so formidable an outpost.

Probably among your numerous readers some one may be able to give further information respecting these bees, which may be a very desirable species to introduce into this country; and I imagine the difficulty in doing so from Jamaica, either as colonies or queens, would not prove insuperable. It appears an effort was made in 1840 to bring over a swarm, but they unfortunately died on the passage.—A. B. Herbert, *Polwarth House, Edinburgh, Jan. 4.*

BEE PASTURAGE.

'North Norfolk' (page 15) must admit that the notice and recommendation of certain plants known to be good honey and pollen producers is of great benefit to many who are not so favourably situated as to have them all represented in his neighbourhood. It is true there are a great many plants in flower in May; indeed, the month of May is notorious for its flowers. But while one species provides an abundance of pollen, others again produce a very limited amount, and it has been shown that the number (specifically) of flowers producing pollen abundantly is not too extensive. Therefore, in drawing attention to plants of proved utility to bee-keepers, it will no doubt help those who contemplate growing bee-flowers near their apiary.—H. Dobbie, *Thickthorn.*

TWO BARROW LOADS OF FIRE-WOOD, AND SEVENTEEN POUNDS OF HONEY.

Some of your readers may be interested in the following account of a bee bargain:—

One of my parishioners, a policeman, having for some time past noticed a dead poplar-tree while on his rounds which contained a quantity of bees, at length succeeded in purchasing the tree and whatever it might contain for a trifle. He knew that a large swarm had left some six weeks previously. One evening the policeman and a friend started for the bee tree. Having smoked the bees, and stopped the inlet and an outlet a little higher up the tree, they began to cut the top off about seven feet from the ground, but encountering comb, went up another couple of feet. In the end they cut off six feet three inches in length, and having stopped both ends, proceeded to carry the tree home (about three miles) on their shoulders. When the tree was cut into lengths and split, four combs were found running the whole length of the tree as long as there was room for them, and terminating in a circular mass with the cells running to a centre. The widest portion of the tree inside where the bees started was about seven inches by five, and this tapered to three inches diameter at the top. The first eighteen inches contained sealed brood, which was put into a bar-frame. Seventeen pounds and three quarters of rich dark honey was obtained. All the drone-cells were full of honey. The bees, and it is to be hoped their queen, were placed in a bar-hive of the policeman's own manufacture. I regret very much that I did not see the tree before it was cut in lengths, as I should have liked to have split it from end to end, and seen exactly how the combs lay.—Charles G. Anderson, *Otterhampton, Somerset.*

IRRITABILITY OF BEES.

While taking sections off frame-hives during the past summer, the bees became very savage, and not satisfied with severely stinging the two people who were taking the honey, they attacked thirty chickens which were in a large wire run about fifty yards from the hives. Twelve of them died from the effects of the stings, though they were extracted as quickly as possible. Some of the older chickens were very much stung, but recovered when the stings were extracted. The dull, damp weather was probably the cause of the bees being so savage, as the writer has kept bees for several years, but never found anything of the kind happen before.—H. D., *Sandy.*

A HONEY-BASKET.

It may be useful to some of the readers of the *Bee Journal* to know I got a honey-basket made for 2*s.* 6*d.* at the Blind Asylum, Sackville-street, Dublin. It is long and narrow, and holds a tin box inside, into which six sections fit exactly, and it carries five or six, according to the weight of them; but the tin box ought to be very tight. I always find it travels safely.—Matilda.

A CURE FOR DYSENTERY.

'Please, Sir, I am come a-borrowing.'—'Yes; how are your bees going on? Have you many supers?'

'Well, no, sir; you see they had the diarrhœa very bad in the spring, and many thousands of them died.'—'Oh, dear! what was the cause of that?'

'Well, I lays it on to the vinegar in the syrup. You see, vinegar will gripe you! But I won't have it so next year, I know a good cure for it.'—'Yes, I should like to know it, it may be useful?'

'What, for yourself? Well, I had it awful bad, and my old woman makes sloe-wine, and that cured me; and so it has plenty others, and no end of people. Why, I cured Farmer Giles' calves that had it mighty bad, and my neighbour's cow that the vet. was beat at; and six fine young pigs of mine was taken with it, but I soon cured them; and so I will the bees next spring, you see! But how do you cure it when your bees get it, sir?'—'I am very pleased to tell you I have not been troubled with it amongst my bees for the past three years, because I am most careful about using good sugar, and preparing my food, and also giving it to the bees; and am well repaid for my trouble, by neither having dysentery nor foul brood.'—'Ah, that is that stinking complaint, that smells like the *'tata* plague, as is hard to cure; I don't want that neither; but I feel sure my

liquor will cure the diarrhœa.'—'Well, tell me how you make it?'

'I take the blackthorn, and peel off the first bark, that leaves two more; I peel them off, and stew them with some blackberry leaves, until there is only a small drop of liquor left, and that I shall put in for the bees, instead of vinegar; and I feel sure it will cure them, because it has cured other things.'

Well, gentle reader, this is 'Hodge's' logic; he can neither read nor write, and, I doubt, has never worked out of his parish, but he has used his *eyes*, and what more do any of us? If born under other circumstances, he might have been Sir Gideon Hodge, Bart., M.D., F.R.S., M.R.C.S.E., and I know not what; but here he toils steadily on, and thinks as he toils; and I am not sure that he has not found a remedy for dysentery. Anyhow, it is worth a trial. He got what he came to borrow, and bid good-day to—AMATEUR EXPERT.

EXPERIENCES OF AN AMATEUR BEE-KEEPER IN QUEEN-REARING AND INTRODUCTION, &c.

Queen-rearing.—I have reared over a dozen queens in nuclei, some of which consisted of three frames, and some of one or two. In one frame of nuclei I have reared most prolific queens, and, contrary to what some apiarians say, I found such nuclei quite easily managed, and with no disposition to swarm when handled. I only lost one queen on her wedding flight, though nearly all my nuclei are close together, not more than two feet intervening. Except with regard to the number of frames in nuclei, I followed throughout Mr. Cowan's advice on queen-rearing.

Queen Introduction—Systems of Mr. Simmins, Judge Andrews, &c.—On one of my stocks swarming, I thought the event a fine one for trying Mr. Simmins's plan of direct introduction. So after removing queen-cells for nuclei, I took a comb with bees and fertile queen from a nucleus, and inserted it quietly in the middle of the swarmed stock. Rain came on heavily, and I did not return to the apiary for an hour, when at the door of the stock in question I found about fifty dead bees, and others still being carried out. On opening the hive I found the queen balled, and then saw the failure of the direct introduction. I caged her, and next evening the bees released her from it, and accepted her. Two days afterwards another stock swarmed, but the swarm was led by a young unfertile queen, the old one having been deposed, and a number of queen-cells ready to hatch were left in the stock. I cut away all queen-cells (from which three young queens hatched in my hand), and taking a fertile queen from a nucleus, I caged her on one of the combs. It was four days after this before I could find time to release the queen, and just when proceeding to do so, I noticed another young queen running about. Evidently she had hatched between the time the swarm left and the time of my inspecting the stock and caging the other queen. I removed her on the comb with bees, and formed a nucleus. I then released the other queen, and she was immediately accepted. So both the queens were equally acceptable to the bees. Professor Cook (p. 198 of his *Manual*) says that Judge Andrews, of Texas, informed him that 'queens will be accepted just as quickly when caged in a hive with a colony of bees, even though the old queen is still at large in the hive. Such caged queens, after two or three days, are just as satisfactory to the worker-bees as though "to the manner born," and even more safe when liberated—of course the old queen is first removed—as the bees start no queen-cells, if the old queen has remained in the hive till this time, and the presence of queen-cells agitates the newly-liberated queen, which is pretty sure to cause her destruction. Here, then, we may cage and keep our queens after they have been fertilised in the nuclei, and at any time can take one of these, or the old queen, at pleasure to use elsewhere.' Without intending it I tried Judge Andrews' plan, and purpose doing so when changing queens in future, as I consider it infinitely superior to Mr. Simmins's plan, chiefly on account of there being no risk with it. Besides, it has all the advantages which a successful introduction on Mr. Simmins's plan would have, and the colony is not without a laying queen for five minutes, as the old one will lay on till she is removed, and the other released. I may mention some other instances of introduction of queens. I stated above that three young queens hatched out in my hand. I allowed one of them to run in at the door of a nucleus from which I had removed the queen two days before. She was immediately 'balled.' After keeping one of the other queens in my room for a few hours in a bottle with a drone and worker, I put her at the door of a nucleus only a few hours queenless, and she was at once accepted.

Age of Queen when Fertilised.—Cook says five days, Neighbour three days, from birth to wedding flight. One of my queens hatched out between Wednesday evening, June 25th, and the following evening. On the following Saturday I saw her, accompanied by a few drones, leaving the nucleus on her wedding flight. She returned in five minutes, bearing a distinct mark of mating. I did not examine nucleus for five days, when I found a goodly number of eggs.

Two Larvæ in One Cell.—Some writers on bees say that the latter will not allow more than one egg to hatch in a cell. I find the contrary. In one of my stocks the young queen (reared from the egg in a nucleus) is so prolific that a large number of cells have two or more eggs in them, and in several instances I found cells with two larvæ in each.

Swarms without Capped Queen-Cells.—One of my stocks swarmed on July 5th, and left no queen-cells capped over, only eggs in them. On the 8th this swarm swarmed, and of course had not time to have capped queen-cells, but cells were being formed, and there were no eggs in them at time of swarming.

P.S. I shall gladly furnish any information in my power (very small, no doubt) to any amateur on receipt of stamp.—APICULA.

PAUL SCHÖNFELD.

(*Translated from Deutsche Illustrierte Bienenzeitung, No.* 4.)

Among the living bee-masters of Germany Pastor Paul Schönfeld, in to-day's number of our *Journal*, occupies one of the first places next to Dr. Dzierzon. Like the latter, he also is a native of Silesia, having been born in Sulau, a small town of Lower Silesia, on the 30th November, 1821. From 1840 to 1843 Schönfeld studied Protestant theology in Breslau, and in the year 1847 he received his appointment to the living of Teutschel, near Liegnitz, where he has continued his beneficent ministration to the present day, highly esteemed and honoured by his parishioners. In addition to his official duties Schönfeld devotes any spare time to the study of bees. The first inducement to become a bee-keeper was probably by mere chance, as frequently happens. He took over from his predecessor in office a colony of bees in an enormous loghive, which, like all colonies in the neighbourhood, had been mismanaged by its owner, and had never yet given off a swarm. In the year 1848, when almost all the nations of Europe were raving with the thoughts of liberty, the instinct of swarming also woke in Schönfeld's colony; it gave off three swarms, which, however, died of starvation in the following winter. The loss of his colonies was the cause of Schönfeld's determination to look after his bees himself in future, and in order to

do so in the most judicious manner he took the pains of making himself thoroughly acquainted with the theory and practice of bee-keeping. All the best bee-literature that could be procured he studied with indefatigable perseverance. In this way he very soon became a complete master of this new subject, and the prosperous state of his colonies was the result of his efforts. With the augmentation of his colonies his fondness of bees increased also.

In accordance with the tendency of his mind, the principal subjects of his ardent study and inquiry were the anatomy and physiology of the bee. After working hard for five years, his first small contribution to our knowledge of the bee appeared in the *Eichstädt Bienenzeitung*, to which periodical he has contributed during the last thirty years. Of his numerous articles, which are generally convincing and well argued, and which, moreover, are distinguished by penetration and clearness, we will only mention the most important ones, and to these belong, first of all, his exhaustive researches on the five senses of bees. These labours of Schönfeld made a considerable stir at the time, and their value was fully acknowledged by Baron von Berlepsch, who requested him to write chapter cv. of his famous bee book, which treats of the senses of bees; to this Schönfeld consented. Baron von Berlepsch always considered this chapter a great ornament of his book. Guided by Schönfeld's opinion that the organ of smell of the bee must of necessity be in connexion with its respiratory organs, Dr. Wolff searched for and discovered the organ of smell of the bee, and wrote his well-known work on this subject.

The investigations of Schönfeld were succeeded by the publication of a large number of articles on the temperature which bees require for their well-being, and these finally led to the setting up of a theory of wintering bees. Although at first frequently misunderstood, as if he had taught that bees ought to be kept at a low temperature in winter, and though often attacked by Dr. Dzierzon, a complete understanding on this subject has now been arrived at between the advocates of the different opinions which at first seemed opposed to one another.

With regard to his studies on foul brood Schönfeld had to fight a hard and obstinate battle against Fischer and Von Molitor-Mühlfeld, which, however, terminated in Schönfeld's favour; and thus we owe to this industrious and keen observer our present knowledge of the real cause of this most terrible disease of bees.

Following the investigations of Dr. Preuss, who discovered minute bodies of an oval shape in foul brood matter, which he termed Micrococci, and which he considered to be the cause of fool brood, Schönfeld proved these Micrococci to be the spores of a Bacillus Bacterium, and maintained that the Bacteria, and not the Micrococci, are the cause of this disease. Having discovered the cause of foul brood, it was not difficult to find a remedy against the spread of this evil, or rather a means of applying the remedy, Professor Kolbe having simultaneously made his important discovery of the antiseptic properties of salicylic acid.

The latest exhaustive articles of Schönfeld on the preparation of chyle, and on the mouth of the stomach of the bee, are also of great importance. That chyle is not a product of the salivary glands, but of the real stomach of the bee, on this there can hardly be any difference of opinion. The anatomical-physiological researches of Schönfeld respecting the mouth of the stomach of the bee, the true character of which he was the first to discover and to describe, have solved the hitherto unexplained problem as to how bees take food and how it is possible for them, as members of a swarm from the honey taken with them on leaving the parent hive, either to construct cells very rapidly when the weather is favourable, or to exist for days without other visible supply of food when the weather is the reverse of favourable, and how bees resting on empty combs in the coldest days in winter are able to draw their supply of food from the stores above their winter quarters.

The above particulars respecting Pastor Schönfeld will be sufficient to show the great fame he has acquired by his apistical researches, and the discoveries he has made in connexion with bee-keeping. We wish our highly esteemed friend not only much pleasure and success with his bees, but also a continuance of the health of body and vigour of mind which he has hitherto enjoyed, in order that he may still be able to pursue his studies with success on behalf of our industrious and useful little insect. —GRAVENHORST.

MUTUAL RECOGNITION AMONG BEES.

Among the infinite variety of interesting problems connected with the life of bees, ants, and other industrious insects, there is perhaps none that exceeds in interest or perplexity the question of the means by which the members of a colony so quickly and unerringly recognise each other, or, to put the fact in another way, distinguish their friends from their enemies. The question has been discussed and re-discussed by the entomologists of many countries, and it is the subject of one of the best chapters in that fascinating book wherein our own Sir John Lubbock records with so much picturesqueness and grace the various experiments which he made with ants, bees, and wasps during a period of ten years. Do these insects recognise each other by sight, by hearing, by touch, or by smell? The question is still an open one, and with some other questions of a cognate kind, may possibly remain an open one till some ardent naturalist takes up his quarters in a bee-hive, there to conduct his observations for a week at a stretch.

One of the latest contributors to the discussion is a writer in the *German Gazette*, and he ventilates what we think will be to most people a new and hardly a probable theory. Not only does he arrive at the conclusion, like some other writers, that bees—the species of insect to which he chiefly confines himself—recognise each other by smell, but he goes further and suggests that they are enabled to do so by a peculiar odour which is imparted by the queen-bee to the members of her colony. His idea, which he unfortunately brings no recorded observations or facts to support, is that the queen, in the course of her wanderings through the hive, sprinkles all its inhabitants with some fluid which she has secreted about her. The propounder of such a theory, the interest of which no one will deny, might have been expected to say something about the anatomy of the queen-bee, and to have indicated the position of the gland which contains the fluid. But that is a point upon which he is silent, and we are left to determine as best we may how so small a creature as the queen-bee can carry about with her material enough to communicate a particular odour to forty or fifty thousand individuals of her own species, for a hive often contains that number of bees and sometimes more. That bees do know each other, and can tell the members of other colonies from the members of their own, is a well-established fact. Any one who doubts it may soon convince himself of its truth by reading Sir John Lubbock's account of their loves and hates, their co-operation in work and play, their formal games, and their battles royal with strangers. While the utmost harmony reigns between those belonging to the same community, says Sir John Lubbock, all others are enemies. They must, therefore, have the power of recognising each other, a most wonderful fact when we consider their immense number and the shortness of their life, the age of a working bee in the summer not exceeding six weeks. And this faculty of identification is so acute that any foreign interloper into a hive, save under circumstances which fully account for and warrant the intrusion, is at once pounced upon by the sentinels or guard—for a guard is part of the organization of a hive

—and either ejected or killed. In form, size, and colour the interloper may be scarcely, if at all, distinguishable from the individuals belonging to the colony, but she is at once spotted, and the guards are up and at her.

According to the German writer, the exceptions which bees appear to make to this draconian severity—this determination to keep foreigners at a distance—are in favour of quite youthful arrivals who on their first flight abroad stray to the wrong hive, and in favour of such bees as, having accomplished a day's work, and being laden with honey or pollen, are driven by fatigue or stress of weather to seek shelter at their neighbours' house. The first of these 'exceptions' requires corroboration, We are far from saying that it will not receive it, but we do not remember to have seen it stated before. We know, however, that the instinct of bees is very marvellous, and it may be that they have indulgences for the young as well as welcomes for strangers who come to them with well-filled honey sacs. Another statement advanced is that the young bees to whom this hospitality is shown generally remain faithful members of the adoptive family, and that if after the lapse of a few days, it falls to their lot to take part in the watch by the entrance, they will show no hesitation in attacking any of their own sisters who wish to penetrate with empty honey-sacs. We are inclined, again, to doubt the latter part of this statement, for Huber, a great authority, states that bees recognise each other after a separation of months, and Sir John Lubbock tells us of ants recognising each other after a separation of nearly two years. He has also shown that sister ants recognise each other even if brought up separately; and if ants possess this this power, why not bees? Of course, the recognition is not individual or personal. The number of individuals belonging to a colony, the shortness of the working bee's life, and the variety of occasions in the summer when the bees are all at home at one time, make personal acquaintance impossible. Whether colour is of any assistance in mutual recognition is a question upon which it would be hazardous to express a decided opinion.

The German writer holds that colour is of no help whatever. Perhaps, seeing how much alike in colour the bees of the same tribe are, he is right. Every one knows, however, that bees possess a strong sense of colour, in the case of flowers at all events, and have an undoubted predilection for blue. Apiculturists used to believe that there was a bee language, and that bees knew each other by a pass-word. But that belief has been generally given up. So far as can be ascertained the sounds emitted by bees—and the German writer says thirty distinct kinds of sounds have been made out by the human ear—are common to all the species. Moreover, there are not wanting observers who deny that bees have any sense of hearing. Sir John Lubbock does not deny it, but he never found them take the slightest notice of any noise he made. They were equally indifferent to the sound of his voice, the playing of a violin, the note of a tuning fork, and the shriek of a dog-whistle. It is strange that they should have been insensitive to the vibration, even if they were insensitive to the noise. It is also strange that they should themselves be capable of uttering such various sounds if they cannot hear them when uttered. The contributor to the *German Gazette* maintains that they can hear, and asserts that a noise of a bee which wishes to drive a person from the vicinity of a hive will bring other bees to its aid. Others, again, have supposed that bees know each other by touch, as they may often be observed in the hive crossing their antennæ or feelers as if they were in communication with each other. But it is in the antennæ, the German writer reminds us, that the organs of smell are placed, and on the whole there is perhaps more to be said for recognition by smell than for any other theory that has been advanced. Soak an ant or a bee in water and its fellows will attack it and pull it to pieces. It has lost its odour and cannot be recognised. On the other hand, a point made in the article under review is that a bee which has been labouring all day obtains entrance into a strange hive the more easily because its stock-odour has been rendered less intensive, or altogether neutralised, by the perfumes of the flowers it has visited. Various facts are quoted in support of the theory of a special odour for every colony of bees. Robber bees, for instance, which enter a strange hive to carry off the honey, are at first violently assailed and beaten back, but if they succeed a few times in their criminal enterprise they may afterwards go in and out at leisure. This, it is argued, is because they have contracted something of the peculiar odour of the household. It is well known, too, that two hives of bees may be united by syringing them with a syrup, flavoured, say, with lemon or peppermint. It is only at home that different sets of bees are inimical to each other. In the open, when busied in gathering honey, they are true cosmopolites. They do not concern themselves about the home or tribe to which the bee on the next flower belongs, but make the best possible use of the treasures of nature lying before them. At home they are jealous of the strange sister; abroad they are either indifferent to her, or magnanimous enough to tolerate her presence.

Foreign.

FRANCE.

The number of provincial exhibitions to be held in the course of the present year promises to be considerable. Already the dates for several have been published, among the most prominent of which are the following:—

Montpelier	from the	2nd	to the	10th of May next.
Toulouse	,,	9th	,,	17th ,,
Valence	,,	16th	,,	25th ,,
Lyons	,,	30th	,,	7th of June.
Nancy	,,	6th	,,	14th of May next.
Sétif (Algeria)	,,	5th	,,	14th ,,

Commenting upon what is likely to be accomplished in the course of the New Year, the *Apiculteur*, which now enters upon its twenty-ninth year of existence, refers to the honey companies now springing up in England, and makes the following remark:—'Lately we announced the formation of a powerful company of English producers for the sale of their products, and now we hear of another being on the point of formation on the lines we suggested last year in this paper. Besides bees, this new company will farm poultry and grow fruit-trees, and dispose of their own produce in the markets and in the streets. Shall we not follow the example of those who are winning our race?'

The central Society of Apiculture and Insectology held its general meeting in Paris on the 17th of December last, when all the retiring officers were re-elected, with the exception of one who tendered his resignation.

SWITZERLAND.

The Annual General Meeting of the Société Romande d'Apiculture was held at Arpillères, near Geneva, M. Bertrand, president of the Society, in the chair. There were about sixty members present, including two or three ladies and a sprinkle of foreign visitors.

In his opening speech, the *Chairman* said: Ladies and Gentlemen,—It is just upon eight years ago since, by the kind invitation of our Hon. President, Monsieur de Ribeaucourt, about a dozen bee-keepers met at Nyon to take into consideration the desirability of forming this Society. Since then the number of our members has increased year by year, and is now about 300. During these past eight years much good work has been accomplished, and, generally speaking, the affairs of the Society have been managed pretty satisfactorily; but there remains a

great deal more to be done, whether as individual bee-keepers or as a collective body. It would be useless to conceal from ourselves the fact that the number of real bee-masters is still very small among us. A great many of our members are not yet quite convinced of the superiority of modern teachings and modern appliances as compared with the practices of old; the ranks of our converts are not progressing very fast. Hence the reason why I should like to see renewed efforts to further the objects we all have at heart; we want to enrol young, vigorous men; we want fresh blood. Our programme is certainly a good one for any of us following it up in earnest. For my own part, the more experience I gain the more convinced I am becoming of this fact. But it is not every district that is favourable to bee-keeping. It is the same with the culture of the vine: special districts may require special treatment; and where there is no bee-flora it would be useless to be obstinate, and then blame our new teaching for the failure. In the course of last year we have had removed by death from among us two valuable members, viz., Mr. Ph. Belet, of Cotes, and Signor G. L. Terni, of Bergamo, Italy, who, although residing in a foreign country, took a great deal of interest in our work. The circulating library established a year ago is meeting with a certain amount of success. The applications for books have only been fifty in number, but there is every indication of its soon becoming an important factor in the field of our Society. The question of statistics was engaging the attention of the Committee, and forms to be filled up for the purpose were sent out a fortnight ago. Hitherto the season had been favourable, and bees, like agriculture, were a couple of weeks in advance of last year. In conclusion, the Chairman wished it to be stated that the free classes in bee-keeping would commence at Nyon on the 28th of April. After a few other remarks of a general character, the Chairman invited discussion on the subject entered in the agenda for that purpose, namely, Whether 'cold' combs, that is, combs running from back to front of a hive, are to be preferred to 'warm' combs, that is, frames placed from right to left across the entrance of a hive, as is now generally done in England.

Mr. Jaques Bonjour, in whose name the subject had been put on the agenda, opened the discussion. Most of his hives are on the 'warm' system, but he also had a trial of the other, viz., the 'cold' plan. Hitherto he had every reason to be satisfied with the former, as, in his opinion, frames placed across the entrance of the hive are more calculated to retain the warmth, and, consequently, is safer for the brood in the early part of the season; but he is not sure that the plan is one that ought to be recommended for all the year round. He would, therefore, feel obliged if his colleagues would also make experiments, and give the bee-keeping world the benefit of their observations.

M. Thuillard has hives of both kinds, and has had therefore an opportunity of comparing both systems. His experience was that 'cold' combs, running from back to front, are much to be preferred, as he always had a larger harvest of honey from hives worked on this system than on the other.

M. I. von Siebenthal is of opinion that 'nature' was the best authority in a matter of this kind. Out of ten hives of Carniolan bees he had received, he found five with 'cold' and five with 'warm.' He had noticed, however, that the 'cold' ones were more regularly built than those across the entrance. This fact had also been noticed by M. Sumi. This gentleman stated that although brood does not seem to progress so rapidly in the early part of the season, it soon makes up for it when a little warm weather sets in.

M. de Blonay finds no difficulty in obtaining very straight combs in the 'warm' system, by taking care that the dummy is well up against the last frame at the back. He had only lately transferred three skeps which he found had all their combs running from front to back.

M. de Ribeaucourt confirms M. Blonay's evidence saying that he never experienced any difficulty in obtaining straight combs on the 'warm' system.

M. Thuillard stated that care must be taken that hives worked on the 'warm' system must be perfectly level, or else the combs are sure to become irregular.

M. Fusay had never obtained from the 'warm' system such good results as from the 'cold.'

M. Bertrand was with the majority of bee-keepers, and had a decided preference for the 'cold' system.

M. Fusay said that all works well in a hive on the 'warm' system provided the number of frames is not too large. His idea was, that a queen will not lay eggs so readily if she has to go a long way from the front entrance to find room for that purpose.

M. Audemars was continually meeting with combs running front to back in straw skeps.

M. Bertrand points out that bees have not solved this question themselves, as, when in a natural state, they will build either way.

M. A. Vallorbes examined about 200 stocks in the course of last spring, and had found a much larger number of dead bees in hives worked on the 'warm' plan, the cause being, in his opinion, their inability to get from comb to comb during the cold season.

M. Henon prefers frames placed from front to back of hives, his argument being, that when placed from right to left, as in the 'warm' system, bees have to lose much time, although of late he had reduced this drawback to a minimum by following M. Thuillard's advice and placing a good number of honey-combs in front for winter supplies.

M. Thuillard considers that a better ventilation is obtained by the 'cold' system.

M. J. Bonjour was of opinion that on the whole 'cold' frames were best suited for brood-rearing, although this year he had an agreeable surprise by a swarm issuing from a 'warm' hive on Easter Sunday.

M. de Ribeaucourt insists upon making winter-passages in all combs.

M. Bertrand remarks that, upon the whole, it could be seen from the discussion that the majority was in favour of 'cold' frames.

At this point *M. Dumoulin* read his report upon certain experiments made by him with a view to cure foul brood.

M. de Blonay bears testimony to M. Dumoulin's statement, having been an eye-witness of the good results obtained by that gentleman.

M. Bertrand explains to the uninitiated the technical meaning of 'foul brood' and 'flour-cake.'

M. de Ribeaucourt avers having cured a diseased stock by using syrup of vervain. In his estimation foul brood does not make such havoc in Switzerland as it does in other countries.

M. Dumoulin recommends the destruction of everything in a diseased hive; the bees only might be used after a few days of semi-starvation, and a free use of salicylic acid afterwards.

M. P. von Siebenthal prefers prevention to cure, and recommends a supply of salt water in the spring, or water with salicylic acid. His idea is to keep bees away from putrid ponds.

M. J. de Siebenthal cautions his hearers against the purchase of foreign honey which might have been contaminated with foul brood.

M. Thuillard had one hive affected, which he destroyed in its entirety; no signs of foul brood have been seen in his apiary since.

M. Bertrand, the chairman, pointed out that there are several ways of curing foul brood, but he knew of only one that could be called profitable. Nor was this

on the principle of killing the horse in order to save the harness, as many do in the spring when they destroy brood as well as combs, although they are both of great value at the commencement of the season.

M. Axberson recommends fumigation, and syrup with salicylic acid: the former as a remedy, and the latter as a preventive.

After a few more remarks from several speakers, *M. Axberson* had much pleasure in stating that, before the month of May he had taken some honey on the mountains. Last year he had been obliged to give about 40 lbs. of sugar to each of his stocks.

M. Dumoulin had been sending his bees on the mountains for the last twenty-five years, and had every reason to be satisfied with the results obtained. He only sent, however, strong stocks.

M. Bauverd thinks the audience would be glad to hear that bee-poison was now used in homœopathy for certain eruptions, as well as for inflammation of the eyes.

An animated conversation was kept up during the repast, after which there was an examination of bee-utensils, including one of Mr. Cowan's extractors and English sections.—*Bulletin d'Apiculture.*

CARLSMARKT.

A Visit to Mr. Dzierzon.

BY DR. PREUSS.

Scarcely an apiarist can be found who has not wished to know Mr. Dzierzon. Having a desire for many years travel through Switzerland and Italy, I proposed to make it the occasion of a visit to Mr. Dzierzon. On my arrival at Pesth, Hungary, I wrote him of my anticipated tour, and my intended visit to himself. Accordingly I arrived at Briega, a pleasant town in the province of Silesia, which is the railway station nearest to Carlsmarkt, from which it is about one German mile away. From Brieg, the travelling public needs take a carriage to reach the residence of Dzierzon. And on account of this primitive way of travelling, my only alternative was either that, or to walk, or to take a horseback ride. Having resolved to hire a carriage I soon saw in the distance, surrounded by a pine-grove, the celebrated Carlsmarkt, a small village, with the houses mostly covered with straw mats, except a little one with a little garden in front well stocked apparently with grapes and peaches, which instinctively I concluded must be the home of Dzierzon—the distinguished Dzierzon.

Seeing a little girl I inquired, 'Is this Mr. Dzierzon's house?' She answered, 'Yes.' 'Is he at home?' I eagerly asked. 'Yes, sir,' she replied; 'he is in the garden.' I immediately passed into the yard, and from thence to the garden, when Mr. Dzierzon came forward to meet me with a greeting of the most hearty character.

We are about the same age (born in 1811), but no one would think him so old. His face has an average fulness, his hair of black sprinkled with grey, somewhat subdued, with every motion light and youthful.

In a quarter of an hour we were busily discussing the foul-brood question. He inclined to the opinion that the malady would not long continue, and inquired whether I proposed to still continue my experiments, and with great eagerness desired to know the shape of the microscopic fungus, and its origin. With conversation of this character he led me into his house, and said, 'I cannot give you a bee-hat.' 'Well,' I replied, 'although I am accustomed to the half wire mask of Von Berlepsch, yet I think a cigar will answer my purpose.' 'But it will be well,' Mr. Dzierzon continued, 'if you will tie a handkerchief about your neck, while I will do the same. It will at any rate keep many bees from crawling under your clothing.'

Mr. Dzierzon then took a piece of rotten wood about ten inches long and a inch square, which, after lighting well, we went to the hives. Mr. Dzierzon's little garden, from which half the world used to be supplied with Italian bees, contains hardly an acre. His hives are placed in pavilions or ranks of sixteen hives each. Many dispute the excellence of a double hive when standing alone, yet with Dzierzon's method of grouping the arrangement is a perfect one, forming at the same time an admirable and complete bee-house.

On a suitable foundation he so places together four double hives that they form a cross, their backs thus forming room with the door opening inside; upon these four others are placed when the exposed corners are covered by perpendicular walls stuffed with a warm material, with the whole protected by a common roof made of inch boards, forming altogether a very warm and healthy bee-house. These houses were in use at most all of his stands. Every luxurious decoration of hive is avoided. And in these stands he keeps only the swarms engaged in queen-rearing. His nucleus hives contain generally from four to six combs, all on little bars lightly covered with small thin boards. He prefers these bars to small frames, saying that 'the queen is more easily found, and not so well able to hide herself.'

I must not forget to mention one peculiarity in Mr. Dzierzon's apiary. He produces but little honey—so great is the quantity of his breeding swarms. He simply says on the subject, 'I am content in not selling honey, for it spares me the trouble of wintering over such a quantity of hives.' In less than half-an-hour he had shown me eight young queens, of each he could tell me the date of their fertilisation, or if they were still unfertilised.

His bees were all of the small Italian size, and all of them had not the beautiful coloured bands possessed by those he sent me some time ago. I am convinced, however, that Dzierzon purchases but a very small fraction of the queens that are sent from his apiary. The price is so low, when the cost of honey is really considered.

I asked him what became of his nucleus swarms in the fall.

'I join them,' he replied, 'in two or three hives with the best and finest queens.'

Dzierzon's farm contains about eighty acres of land, upon which he has a few horses, and with one we drove to one of his distant apiaries; on the way we drove through a beautiful avenue of oaks, and expressing my admiration of the large trees, he said, 'They were very useful to his bees on account of their honey dew; they are often covered over with plant lice (*aphides*).' Arriving at the apiary we found similar pavilions or ranks of sixteen hives as before; here were also the hives that furnish the bees for the nucleus swarms, some of which we opened and found all populous and safe. I turned to Dzierzon and inquired, 'Who is managing these swarms?' 'Oh, nobody,' was the reply, 'I let them fly where they pleased. I have hives enough, and with my nucleus swarms, as many as I at present desire, having three hundred in all.'

He spoke then concerning the bee-moth, and his remark was, 'There is nothing in the household of nature that is not of some use; even the bee-moth is useful, if we would only recall the natural caves in which bees have built their houses for centuries; not being able to eat away the old wax themselves, for the purpose of rebuilding, the advent of the bee-moth furnishes the necessary means of destroying it.'

In the course of our conversation, we came to the drone question, and I assured him that a very important case induced me to give it very earnest thought. A queen purchased from his own apiary has reared (the workers excepted) the most beautiful golden-banded drones. Two years after the queen died. It is her daughter consequently that must now do the breeding, and she, must rear, whether fertilised by an Italian, or a German drone or not, drones of the same excel-

lent quality. But it was not so, all the drones became black, and they scarcely differed from the German ones, and the workers were bastards.

'I know also concerning this matter,' I continued, 'that Von Berlepsch has said that he also has observed that Italian queens have hatched occasionally black drones.' Dzierzon was now all ear. He replied, 'The bee-keepers think me authority in this matter of apiculture, but I make no declaration of infallibility. I have observed one fact, that the mother always gives the greatest character to the progeny; the genuine Italian queen, for instance, fertilised by a German drone, will produce bees that will gradually assimilate to the queen.'

Our conversation was also about many other eminent bee-keepers—Von Berlepsch, Kleine, Schönfeld, Vogel, and others, and his judgment concerning these gentlemen was always courteous and respectful, never blaming or disregarding any who opposed his theories. Meanwhile, we returned to Carlsmarkt. Dzierzon invited me to dinner. I accepted the invitation with pleasure, that I might the longer enjoy his society. We went first upstairs to his library. 'Here,' he says, 'you see piles of letters, and all of them I shall answer. People often refer to letters which they have written many years ago, and they suppose I can keep them all packed away in my memory.' Dinner was over, and the heat was now very intense. He invited me to go with him to one of his pavilions to see, perhaps, some fertilised queens, and observe upon them the member of the drone, but no queen could be found with the interesting sign. Having again alluded to the foul-brood question, I made preparations to leave. Shaking hands heartily with me, he said, 'You will often think now on the *Bienenzeitung*.'

Leaving Dzierzon's house all absorbed with what I had seen and heard, I could well understand the general respect that he received from every one; for it is not only the ingenious physiologist, it is also the mild and pure character, the noble and virtuous man, controlled by an inward disposition that merits universal esteem.

May God grant him extreme happy old age which his health and disposition of mind and body so fairly promise.

HOLY LAND.

EASTERN BEES.

Probably it may give some light if I were to state briefly the undertaking of the 'Eastern Bee affair,' by Messrs. D. A. Jones and F. Benton as I view it.

Almost everybody acquainted with Mr. Benton, or who has had anything to do with the Eastern bee question, knows that the above-named gentlemen undertook this grand affair, coming all the way from America, and, after only a few days' stay in Europe, came right to the Orient. Not knowing the language or climate, they had to suffer a good deal; especially Mr. Benson, who after his travels in the south Asiatic Islands in search of *Apis dorsata*, and actually ruining his health in the jungles of Ceylon, had only partial success in obtaining the great bee. He went on supplying Europe and America with Cyprian queens, as it was on the Isle of Cyprus he then 'camped,' till, in January 1882, he left that place and came over to Beyrouth, Syria, where again he had to learn another language, as in Cyprus they talk the Cypriot-Greek, whilst in Syria the Arabic is the native tongue, although here, in the Levant, the inhabitants might be called polyglots. Still Mr. Benton is very quick in taking hold of the most necessary words in a language that he does not really intend to learn, so that, when I visited him in May 1882, he knew sufficient of that language for his daily necessities. The summer of 1882 did not prove favourable for him, with several attacks of cholerine, the loss of his only child, and his very easy way of looking to his health: the doctors agreed to urge him to leave the country. I agreed in the fall of 1882 with Mr. Benton for the purchase of the apiary, and pay him in Syrian and Palestine queens during the season of 1883 (see page 225, number 149, *B. B. Journal*, Vol. xii.) After many difficulties with the postal officials I began the season of 1883, sending queens to Athens (Greece), and later to Munich (Bavaria), from whence Mr. Benton hoped to serve the European and American bee-keepers more promptly on their demands. I made my best possible efforts to pay the number of queens agreed to, but the cholera coming up to Egypt, and in July to Beyrouth itself, made me leave this place by land. In addition to these postal irregularities and the cholera, a facial neuralgia befell me, and I left Beyrouth after complete restoration.

I left the Mount Lebanon Apiary in charge of a gentleman, who himself did not understand anything about apiculture, but still agreed to do his best and would not have any pay, which still was the worse for me, as I could not ask a guarantee in consequence of such an offer; and imagine my own surprise when I had heard that about twenty of the stocks had gone. He then followed my instructions by letter to prevent them flying, but I heard no more about them; and as I was busy setting up another apiary, I received a letter of condolence from Mr. Benton about the complete, or almost complete, loss of the apiary. He then urged me to come and help him, but I was in a situation impossible for me to leave, as April is the month when our orange-blossom honey-flower is so abundant, that not a day can be spared; still I think I can well go there in March 1885, and again in May and June, and can supply queens, the statement therefore (page 383, No. 157, Vol. xii., *B.B.J.*) made in reference to myself, that I 'will not go back on any account,' was only available for April 1884, and has nothing to do with any time afterwards.

Still I do not think it very necessary to hazard so great expenses in getting fresh help from England, when help, although inferior, may be got in Palestine, a journey of twelve hours by sea, whilst the other will take a fortnight at least besides the difference of expense. It is not the way the bee-keeping public will have any hopes of getting queens at reduced prices.

I hope this may help Mr. Benton as well as the bee world.—Ph. T. Baldensperger, *Sharon Apiary, Jaffa, Palestine.*

AMERICA.

Honey a Substitute for Butter.

'Times are bad and likely to be worse,' said a prominent member of the Franklin Institute to a reporter yesterday afternoon. 'Butter is becoming scarcer and dearer every year, and it will be beyond the reach of poor people this winter. Unless poor people who are out of work find a substitute that is cheaper than butter, they will have to eat their bread dry. They will not eat butterine or oleomargarine; they would turn up their noses at that, if they were starving.'

'What can they use, then?'

'I do not know; but if some enterprising man would take hold of the honey question, I believe he would make a fortune.'

'Honey?'

'Yes, sir,—honey. There is an opinion going around that honey is a luxury. There never was a bigger mistake made. If it does not make much muscle, it gives warmth to the whole system, arouses all the nervous energies and gives vigour to all the vital functions. I can talk about honey because I know about it. I know that most children would rather eat bread and honey than bread and butter, and that a pound of honey will go as far as two of butter. Besides, honey will keep for ever and never get sour or rancid like butter does. Then look how much cheaper it is. Honey can be bought at 15 cents and 20 cents a pound, and a fair profit made by the retailer. Butter is seldom less than 40 cents, and this winter it will reach 55 cents a pound

Of course I am only speaking of the best kind of honey. Buckwheat honey, which has a slight flavour, can be retailed at a profit of 1 dollar for 8 pounds. But, Lor' bless you, the people would not eat that. Only the best is good enough for them.'

'Could enough honey be brought into the market to substitute it for butter?'

'Well, that is not exactly the question. It is not likely that honey will supersede butter altogether: but just now, when wages are low and butter is getting higher and higher every day, it would be a good thing if people knew that they could buy a good substitute, if it is only a temporary one. What is wanted to make it a paying one is the introduction of the barrel trade. If retail dealers would take their honey in barrels and sell it in small quantities at the rate of about 15 cents a pound, they could make a large profit. You know working people look twice at a quarter before they spend it on what they think is a luxury. But if they thought they could buy 5 or 10 cents worth at a time, they would be glad of it, and they would soon learn that honey is cheaper and preferable to butter. In the winter honey candies and becomes hard enough to cut with a knife and spread like butter, so it can be used in the same way. If a demand for pure honey arose, a hundred barrels could be brought into the city every week all the year round, or a hundred dozen if the demand increased.'

'How about adulteration?'

'The principal adulteration is glucose, but it is not difficult to detect. Honey mixed with glucose will not candy at the lowest temperature, whereas pure honey candies very freely. The best way to keep honey is in those five-pound Mason jars. If it candies, so much the better. A little heat will soon liquefy it, if that is desired. If people generally knew what a nutritious, wholesome food honey is, it would not be long before the bee-keepers would have all they can do to keep up the supply.'—*Indianopolis Evening News*, Dec. 10, 1884.

California as a Bee Country.—Bee-keeping has been carried on extensively in this State for ten years. The product of our apiaries has been at times almost fabulous, and is now sent to all the large markets of the world. There is some competition, it is true, not on this coast, but in the Eastern States and in foreign marts, but the superior quality of our article will always make it, as it has been heretofore, unsurpassed, and find for it a ready sale everywhere. The reason for its being so remarkably fine and so much in public favour is that our best California honey is gathered from the California mountain honey sage, a plant indigenous to this State. It is to be found in all the hills and mountains in the southern counties of the State. Being a native plant, it is to be found growing wild in the section mentioned, and it grows where no other useful shrub or plant thrives. By giving due attention to the sowing of the seed of the sage on hill lands where it is not now found, the bee-pasturing acreage of the State will be, and that profitably too, augmented. The growing of this plant has been successfully attempted, we are informed, as far north as the latitude of San Francisco. It is, beyond all doubt, a good plant to cultivate for bees.

It is needless to write of California as a farming country. Californians, those who have visited the State, and still better, the products of the land, all verify the fact that the State is, *par excellence*, a paradise for farmers, gardeners, and persons following kindred occupations. In some of the counties toward the southern portion of California irrigation is had recourse to, and the results give testimony to the benefits derived therefrom. We understand the cost of irrigating is not much of a tax, when the large yields resulting therefrom are taken into consideration. In the central and northern counties irrigation is not required.

There is some public land suitable for farming yet to be had, but it seems to be pretty scarce. The Central and the Southern Pacific Railroad Companies have large quantities of railroad land which they receive as grants from the Federal Government, and which they are offering to those who desire to settle thereon. These companies have a land office in San Francisco.

To those who contemplate coming to this State, we would say by all means correspond with the State Immigration Society. It is an institution fostered by the enterprising people of the State for the encouragement of a desirable immigration, and when applied to, will furnish all desired information. Its address is No. 10 California-street, San Francisco.

There are a couple of good agricultural papers in the State, to wit: the *Pacific Rural Press* and the *California Patron and Agriculturist*, both published in San Francisco. The former is much the longer established, and stands at the head of the list of agricultural journals of America. Its Apiary Department is ably edited, and has for its contributors some of the best and most progressive bee-keepers on the Pacific coast, and the information it furnishes its apicultural readers is hardly surpassed by the bee-journals themselves.

For an idea of what the honey crop is for this year, the columns of late numbers of the *Rural Press* will amply show. There is no bee-journal published in the State, but the want of one is ably supplied by the department in the paper above alluded to.

Most of our bee-keepers now cultivate a piece of ground in connexion with their apiaries. Both may be made to yield a snug little income.

Echoes from the Hives.

Devon.—The following will be found to be the total rainfall in 1884 at Broomhill, Tiverton, Devon: above sea level 380 feet:—

Month.	Total Depth.	Greatest Fall in 24 hours.		Number of Days on which ·01 or more fell.
	inches.	Depth.	Date.	
Jan.	4·049	·070	25	19
Feb.	4·005	·069	27	21
March ...	3·051	·115	3	16
April ...	2·021	·051	4	11
May	1·061	·044	2	9
June... ...	2·097	·140	28	7
July	3·009	·080	15	19
Aug.	2·017	·092	31	12
Sept. ...	2·014	·047	15	17
Oct.	1·019	·033	8	14
Nov.	2·003	·039	30	15
Dec.	4·090	·073	5	20
	3·436			180

Although the past has been comparatively a dry season, yet in 1882 we had over 42 inches of rain, and in that year the pumps in the neighbourhood were dry for five months. There is little to record concerning the bees; we have been busy working up a census, and it is calculated that about 21 tons 13 cwt. 102 lbs. of honey are gathered in the county; it has been difficult to obtain satisfactory returns, as we have had to contend with superstitions and many other obstacles.—Wm. N. G., *Hon. Sec. D. and E. B. K. A.*

Melbourne, Victoria.—We have started a Bee-keepers' Association in this colony, and I shall feel it a great kindness if you will send me a copy of your rules, &c., and all the information that you can give me in every direction, especially the exhibitions you have held in Grantham.—Joseph Miller to Mr. R. R. Godfrey.

NOTICES TO CORRESPONDENTS & INQUIRERS.

VIRTUOSO.—*Bee Shed.*—We advise you not to place your hives inside the building. They will do far better outside, on single stands, with southerly, or south-easterly aspect, space being left between the hives and the wall for manipulating. We advise double-walled frame-hives, and to purchase one of a good maker, as a pattern to work by, having not less than twelve standard frames, with division-boards. You might utilise your shed by turning a part of it into a 'honey-room' for extracting, manipulating, and other purposes: having put in a window, as you propose. No apiary is complete without such a room. With six hives you certainly ought to possess an extractor.

W. H. J.—*Time of Transferring.*—1. Stimulate your colony in the skep by gentle feeding at the proper time, in order to obtain from it an early natural swarm. Three weeks after the casting of the swarm transfer combs and bees from the skep to the frame-hive. 2. *Removing Hives.*—If the distance between the old and the new position of your hives is short, let them remain until the bees fly, then remove by degrees. Disguise the old standing plan, and cause them to mark their new location, and all will go well. 3. *Bees Dying.*—It is impossible to say what is the cause of the dying of the Italian bees unless we knew their previous history and the surrounding circumstances. Probably the deaths have been caused by distension of the abdomen, or incipient dysentery, to which the late breeding by a young queen may have conduced. In our own apiary the Italians are wintering better than the blacks at present. Do not examine or disturb them at all. Simply keep the entrance clear of dead bees.

MELLIS.—*Combination Twin-hive.*—The hives you propose to use are generally termed 'Combination twin-hives.' These answer well in a good season, and bees winter well in them. You will find a length of 3 feet clear inside measure, which takes twenty-four frames, sufficient. The hives should have double walls. Care will be required to prevent fighting when the two colonies are united. After one queen has been removed smoke both ends thoroughly on removing the division-boards. This plan is better adapted for extracted than for comb-honey, and in our opinion the two colonies worked separately would give a better result than when united. It must be a *very prolific queen* indeed to keep a hive of twenty-four frames well stocked with bees. As a rule, we consider twelve Standard frames sufficient for one queen, except, perhaps, in the midst of a heavy honey yield, when a colony is being worked for extracted honey only. If this is your object we advise you to give the plan a trial. Experience alone can decide these questions.

J. T. CHINNICK.—*A Cleansing Flight.*—The 5th inst. —the day you mention—being bright, warm, and clear, the bees, after confinement to their hives for several weeks, by inclement weather, and unusually cold winds, took the opportunity of a 'cleansing flight,' than which nothing could be more conducive to health. The retained faeces were discharged, and the general health of the colonies greatly improved. You need be under no fear of dysentery. On fine mild days in winter the more the bees fly the better for them. Do not disturb them at all, but keep the entrances clear of dead bees. That is all that is required at present, provided the bees are not in want of stores. More bees are destroyed by injudiciously interfering with them, and manipulating, at unseasonable times, than by actual starvation.

A. CLARK.—1. *Moving Bees short Distance.*—See reply to 'W. H. J.' (2). 2. *Extractor.*—We think that Cowan's Amateur Extractor would suit your purpose. We have had no experience with the one you mention.

CONSTANT READER.—See reply to A. Clark.

F. F. MCK.—The following bee-flowers may be employed for covering a rustic fence:—*Clematis Jackmanii, C. flammula, C. viticella,* and *C. Vitalba* (Traveller's Joy), *Hedera helix* (Ivy), and its variegated forms, *Pyrus japonica, Escallonia macrantha, Lonicera caprifolium,* Single Roses (*Rosa canina*), *Cotoneaster microphylla,* and *Ceanothus azureus.*

J. E. L. GILBERT.—*Nuclei.*—We do not think it necessary to use woven wire separators; thin wood would do just as well; but if you do use it, each colony having a separate entrance would be distinct, and would not discard its queen on account of the proximity of another in the adjoining colony.

A YOUNG BEE-KEEPER.—*Zinc for Roofs.*—This material, if nailed or otherwise fixed, will always buckle with heat. Its usefulness is not thereby impaired, although it becomes rather unsightly. But if not nailed, but simply turned under the eaves, so as to allow for expansion by heat, the tendency to buckle is greatly lessened.

A. W. CHAYTOR.—1. *Dysentery.*—This does generally arise from the causes you name; but as this year you seem from your letter to have avoided them we trust you will find your bees free from it. You do not say they are now suffering from it. Do not mistake the cleansing which naturally takes place on a fine day after a period of confinement for dysentery. (See reply to J. T. Chinnick.) 2. *Comb-honey from Combination Hives.*—Get your stocks strong and ready to gather the harvest. When it arrives remove the frames not containing brood, and give frames of sections at the back of hive protected by excluder zinc. When the bees have taken to them and commenced building comb, remove them with the bees still in them to the crates over the frames.

RED JACKET.—*Propolising.*—If the frames and crates are well made and fit the sections correctly, only a very thin line of propolis will need to be broken; but if badly fitting they will be all the more firmly fixed. Grease, or still better the substance called vaseline, causes propolis not to stick.

C. CARRICK.—1. *Sugar Candy.*—No; the sample enclosed is not suitable for bees. 2. '*Cowan's Guide-book,' not his 'Note-book'* is the book you are in search of. In the former you will find instructions for making bee-candy. 3. With candy or dry sugar, bees require water, which may be given by putting a piece of tin of a few square inches area under the quilt on the frames. This will condense enough of their own moisture to serve their needs in winter.

R. E. C.—*Sugar for Bee-feeding.*—The reply to your query on this subject having extended beyond the usual limits has found a place among the 'Editorials.'

INQUIRER.—The American cloth is placed with its smooth surface next above the frames; and on this sufficient water will condense, so that the bees are enabled to reduce the sugar to syrup. (See also reply to C. Carrick [3].)

W. H.—*Phenol.*—We are aware that a large number of bottles of phenol have been purchased, and we presume used for the cure of foul brood. We have published the various results that have been forwarded to us; and we shall be pleased to give insertion to such others as may reach us.

W. FRANKS.—We hope to be able to insert your communication in our next issue.

THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

[No. 163. VOL. XIII.] FEBRUARY 1, 1885. [PUBLISHED FORTNIGHTLY.]

Editorial, Notices, &c.

PRIZES FOR AFFILIATED COUNTY ASSOCIATIONS.

From a wish that the Affiliated County Associations should not lose the benefits which might have accrued to them under the Peel Testimonial scheme, the Baroness Burdett-Coutts, the President of the B.B.K.A., has joined with the Rev. H. R. Peel in offering three prizes of 5*l.* each, to be balloted for at the General Meeting on February 11th by all such County Associations as have held their Annual General Meeting for the current year, sent in their reports and balance-sheets to the Secretary of the B.B.K.A., and have paid their affiliation-fees prior to February 11th. Before this announcement is published the Secretary of each Affiliated County Association will have received a communication from Mr. Huckle, asking whether it is the wish of his Association to compete for the prizes, supposing that all the conditions have been fulfilled. The ballot will be conducted on the same principle as the ballot for prize hives at the general meetings of County Associations.

OUR HONEY IMPORTS.

On page 47 will be found a statement of the value of our honey imports for the years 1883 and 1884, showing that, notwithstanding the wonderful honey yield in the past year in this country, the value of the imports of 1884 has exceeded that of 1883 by 28,579*l.* If we calculate that foreign honey realises 4½*d.* per lb., we find that 3,325,707 lbs. have been imported into this country.

The thanks of all bee-keepers are due to E. H. Bellairs, Esq., for the trouble he has taken in transmitting to us the returns of the honey imports, forwarded to him through the kindness of his friend the Principal of the Statistical Department of Her Majesty's Customs. We could desire that Mr. Bellairs should be saved this trouble. The time was when 'Honey' was included in the usual published returns, but in 1871 it was struck out 'as being insignificant and of no interest to the community.' But a great change has taken place since then, and imports of honey from all parts, especially from America, have marvellously increased.

From the returns it would appear that in 1883 the imports were 33,778*l.*; in 1884 they are well-nigh doubled. We consider that these figures are now of such a magnitude as should make the authorities reconsider their previous determination, and that honey should not be relegated to the limbo of unconsidered trifles. If the returns were to be found in the Accounts of the Import and Export Trade, we should be in a position to say how many pounds of honey are represented by the sum of 62,357*l.*, the countries from which the honey is exported, the amount re-exported from the United Kingdom, and that retained for home consumption. These particulars would be found most interesting. The accounts of the imports and exports are compiled at the Custom House from documents collected by that department, and are subject to the Board of Trade as respects the extent of the information furnished and the form and construction of the returns.

We could wish that some representation were made (say by the Committee of the B.B.K.A.) to the Board of Trade, of the great interest now taken by the bee-keepers throughout the kingdom in the information respecting the import and export of honey; and we cannot think that such a representation would be allowed to pass unheeded. Pending that result, however, we should be obliged by Mr. Bellairs and his collaborator kindly continuing to furnish our columns with the returns that come to their hands.

OUR WAX IMPORTS AND EXPORTS.

Passing from the consideration of the value of the honey imported into the United Kingdom, we desire to direct the attention of our readers to the second product of the honey-bee, viz., Wax. From the most ancient times the production of wax has been considered indicative of the fertility of a country; and to the present day in many countries it is considered one of the staples of industry.

The returns relating to the Trade and Navigation of the United Kingdom for the year 1883 have been recently published, and from them we are enabled to discover to what extent wax has been imported into this country; and as these are compiled by Government officials we are in the possession of a number of particulars which the single-handed labours of Mr. Bellairs have been unable to obtain respecting the honey imports.

The imports of wax into the United Kingdom

were, in 1882, 35,538 cwt., value, 126,926*l.*; in 1883, 28,192 cwt., value, 97,142*l.* The exports of wax from the United Kingdom were, in 1883, 12,504 cwt., value, 41,339*l.*; leaving for home consumption 15,688 cwt., value 55,803*l.*

The following table gives us the analysis of the imports, specifying the countries from which wax is exported, and the amounts and value thereof:—

	Cwt.	£
Germany	9,060	24,842
Holland	441	2,897
France	611	3,491
Portugal	496	2,512
Gibraltar	95	533
Italy	292	1,700
Austrian Territories	63	368
Egypt	75	467
Morocco	610	3,272
West African Settlements	506	2,604
British Possessions in South Africa .	415	2,458
Madagascar	288	1,446
Mauritius	573	2,927
British India	830	4,954
China	1,450	3,255
Japan	6,817	13,141
Australasia	605	3,570
United States of America	3,035	11,960
British West India Islands	873	5,402
Hayti and San Domingo	34	238
Chile	438	2,981
Brazil	519	1,794
Other Countries	66	330
	28,192	97,142

The mean price per cwt. is 3*l.* 9*s.* 3*d.*; and from the various prices realised in different countries, we are enabled to arrive at some idea of the purity and value of the wax. That from China and Japan fetches the lowest prices, the former about 2*l.* 5*s.* and the latter 1*l.* 18*s.* 2*d.* per cwt. The highest prices given are for that from Chile and St. Domingo, which amount to 7*l.*; that from Holland is the highest from European countries, viz. 6*l.* 11*s.* per cwt. The price from the majority of importing countries is upwards of 5*l.*

A large amount of wax is re-exported, Germany being the largest purchaser. From the realised value of the wax from Germany, we may conclude that it is not pure wax, but what one of our correspondents designated 'earth-wax.' Wax is frequently largely adulterated with earth, meal, rosin, &c.; the first two render it brittle and greyish, and may be detected on melting the wax, when the impurities may be strained out.

Besides bees-wax, two kinds of animal product enter into commerce. The first is the insect-wax of China; it is found on the surface of many trees there. It is produced by a small hemipterous insect (*Coccus sinensis*), which about the beginning of June climbs the tree, feeds on it, and deposits on the branches a wax resembling hoar-frost. This is scraped off, melted in boiling water, and strained through a cloth. Another wax of insect origin is the Andaquiss wax of South America, which is produced from a small insect called *Aoesa*. There are numerous kinds of vegetable wax; they are principally to be found in Japan, New Grenada, and the United States. Wax often occurs likewise as a mineral, though in this case its original source was doubtless vegetable.

The amount of wax imported into this country, and the sums paid for it, are of such a magnitude, that it may well behove the bee-keepers of this country to direct their attention to this product, and strive that the supply be more equal to the demand.

USEFUL HINTS.

February, with its early spring flowers, again greets us, after a cold January, in which much snow has fallen, and many severe frosty nights have occurred, although we have experienced no long-continued frost. We remember seasons in which February has proved the warmest and brightest of the spring months. Such seasons, however, have never proved very productive either in honey-yield or the various fruits of the earth. Although we may not at present enter upon active operations in the apiary, yet it behoves us to begin our preparations for the coming season under the following heads.

Hives.—Since we can now form a tolerably correct estimate of the number of hives required, it is best to procure them at once, to have them well painted, and at our leisure to insert foundation in the frames. Our own plan is to use full sheets of the 'Given wired-foundation,' leaving $\frac{1}{4}$ inch space at the sides, and $\frac{1}{8}$ only at the bottom. The foundation is let into the saw-cut by springing it open by means of a couple of brads driven into the bench, and on withdrawing the frame, the cut closes, grasping tightly the foundation. A piece of fine silvered wire passed through small holes in the ends of the frame, two or three inches from the bottom, is then drawn up tightly on both sides of the foundation, and secures it in a vertical position. Our combs in a large apiary have all been built upon this principle for several years, and we have had no case of the falling of a comb, or refusal of bees to rear brood, or store honey in cells through which the wires pass; and so firmly are the combs built into the frames that there is no breakage or throwing out of combs when extracting. On no other system have we ever obtained combs so straight, and with a little practice the operation of inserting the foundation is most easily and quickly performed. Let all old hives be thoroughly cleaned, scraped, disinfected with carbolic or salicylic acid, and repainted.

Racks and Crates.—The word 'rack' applies to the frame, fitted to the top of a hive, for holding sections. 'Crate' applies only to the wooden case, usually made with glass sides, for conveying honey to market or elsewhere. To avoid confusion of terms, it is necessary to bear in mind this distinction. Let racks be prepared without delay for holding the *quasi*-standard sections. As being more portable and easily manipulated, we prefer the divisional racks, consisting of three separate boxes, to which were awarded many prizes last season.

Plants.—The present is a good month for planting *Limnanthes Douglasii*, *Arabis alpina*, on both of which the bees revel, and other bee plants. The

two former may be obtained now very cheaply, and will bloom throughout the summer.

Feeding.—Where bees are short of food, candy placed under the quilt is still best. Towards the end of the month, in fine weather, syrup may be given thick, as food, when required, not for stimulation. Give the food warm, at night, in a bottle-feeder. When crocus blooms appear, pea, wheat, or rye meal may be given in any of the prescribed forms, which it is not necessary to restate or enumerate here. An engraving of a useful apparatus for this purpose is given on page 191, Vol. IV. of the *Bee Journal*.

Manipulation or Examination of colonies should only be practised in cases where it is really imperative, towards the close of the month, weather permitting. Except in cases of queenlessness, the brood-nest must not be broken up or divided. The outside frames, up to the cluster of bees, on either side may be removed and examined, and in those next the bees the sealed honey may be partially unsealed, and the division-boards again closed up. Remove damp quilts and supply their place with warm, dry ones. Let this be done quickly. Floor-boards should now be changed, and a supply of spare ones kept on hand, clean-scraped, and given warm, in place of the soiled damp ones removed. Gently raise the hive from the board on wedges, let it remain a couple of minutes, with the air circulating beneath, and then quietly place it on the clean, dry board, removing the old one. On fine, bright days open the entrance slides to their full width—to entice the bees to fly—clear the entrances of dead bees and *débris*, and towards evening again close the slides so as to admit one or two bees only at a time. A ½-inch entrance will be sufficient until bees begin to work freely. Where chaff-boxes are not used above the quilt, or felt, a crown-board, or other weight, should be applied in order to keep all close, and warm. The above operations should be performed in fine weather only.

Moving Hives.—Where a re-arrangement of hives in an apiary, by moving them short distances, is desired, it may be carried out this month, during *continued cold weather*, without loss of bees. So long as bees have not commenced their spring flights there is no necessity to remove them daily by a few feet only, as in the summer months when colonies are in full work, but they may be carried to their new stands at once. This, at least, is our experience.

THE CHESHIRE FUND.

Since no opportunity has occurred, for a reason seen below, to present me with the objective, towards the cost of which many have kindly contributed, I beg a small space to express my thanks for the objective itself, and even more emphatically to record my gratitude for the kind feelings and appreciation which have led to the gift. There has been some misapprehension, necessarily, upon a question purely technical, and some have thought that a microscope was to be purchased for me. It seems fitting for me to say that the work upon which I have been many years engaged has required a microscope, and that upon my two principal instruments and their accessories, microtomes, injecting apparatus, &c., I have expended very little less, if indeed any less, than 250*l*. My larger microscope is a beautiful instrument of the most perfect description; and yet when I came to work upon bee bacilli, I found that if I was to do all that could be done, a new power or objective (of which already I possessed thirteen) of a special kind was an essential. In a letter to Mr. Peel I mentioned this, adding that, although it seemed a heavy outlay for one point only, I meant to make it. Mr. Peel, Mr. Bligh, and some others, very thoughtfully and kindly started what is now publicly known; but I, in the meantime, had ordered the objective, and curiously received it on the very day Mr. Bligh's letter, asking to be forgiven his wickedness in showing so much goodness towards myself, arrived, so that the thing was bought and paid for in advance, and a present at a conversazione could hardly be made. This makes the gift no less grateful to me, while this explanation is needed, since some of the work recently done has been accomplished by this new acquisition, *e.g.*, I was enabled at once to determine by its aid that there is a variation in *Bacillus alvei* previously unnoted, and that the one form which is common is most positively absolutely curable. The other is now under experiment, and about it we shall know all in the coming summer, all being well. It is, of course, known that apicultural problems are occupying by far the larger part of my time; and just now this new glass, which is of extreme excellence, is doing me good service in investigating the glands of bees, which have much to do with our understanding of some honey questions. In the summer it is my desire to go on with the curious, and now very wide, question of disease-germs, upon which, through my discoveries of a few months since, I hear the Germans are engaged. All these investigations must be for the furtherance of apiculture, so that I hope that while I record my indebtedness to my brother apiarians, the end will show that the indebtedness has been mutual.—Frank R. Cheshire. *Avenue House, Acton, W.*

THE CULTIVATION AND PROPAGATION OF HONEY AND POLLEN-SECRETING PLANTS.

(*Continued from p.* 22.)

Crocus.—The crocus is usually imported from Holland, and may be bought at a cheap rate. In the autumn plant the bulbs in groups or *en masse*, three inches deep. Do not cut the foliage off before the bulbs are matured, as this practice tends to weaken them, and prevents the proper ripening of the root. Another good plan is to grow them in pots protected by frames or hand-lights. Place five or six bulbs in a five-inch pot; keep the soil moderately moist until the flowers have faded; after then a liberal quantity may be given till the foliage shows signs of decay; then gradually discontinue. When mature store away in a dry place until the autumn. It is a grand sight to see a three-lighted frame full of golden crocus flowers, with hundreds of bees busily engaged gathering pollen.

Figwort (*Scrophularia nodosa*).—This is the celebrated 'Simpson Honey Plant' of the Americans, who grow it by the acre for its honey-secreting qualities alone. It is a native of Britain, and grows, like our meadow-sweet, (*Spiræa ulmaria*) in moist situations and by the sides of streams. Under cultivation it grows to the height of four or five feet and produces hundreds of little globular brown flowers. Mr. Root, in his *A B C*, thus speaks of its honey-secreting character: 'The amount of honey is what astonishes me; one of these little flowers contains, I should say, as much as 100 basswood (lime-tree) blossoms. At present I know of no other plant that promises so well for cultivation for honey alone. A single plant in the garden, for curiosity, if nothing more, I think would be well worth the trouble to every bee-keeper.'

This valuable bee-flower blooms continually from July

to October, and, like borage, honey secretion is being carried on all day long, so that bees are busy collecting the nectar from daylight till dark. The amount of honey that one flower is capable of elaborating is indeed astonishing. Here, then, we have a member of the bee-flora that comes in just at the time when nearly all other honey-secreting plants are ripening their seeds. This fact should commend the figwort to all apiarians. My experience of it is such, that, as a bee-plant, I predict for it a great future when better known.

Sow the seed in August in a seed-pan or flower-pot, the soil used should be very fine as the seed is very small and should be covered lightly, care should be taken to keep the soil moist: and as soon as the young seedlings are large enough to handle they may be planted out into boxes 1½ inches apart using good soil. They may be wintered in cold frames, or a few leaves may be thrown over them in frosty weather; in March or April transplant in the open, 2½ feet apart, giving water until established.

French Honeysuckle (*Hedysarum coronarium*).—Equal alike for honey and pollen, in flower from June to August, perennial, very showy and effective in gardens. Sow in May in seed-bed and transplant eighteen inches apart each way: or if sown in heat in March the plants will flower the same year.

Golden Rod (*Solidago Virgaurea*) is another British plant, and is often seen growing in old-fashioned gardens where its golden spikes form a very pleasing feature in early autumn. Cuttings about three or four inches in length inserted in sandy soil in April will readily strike root: keep moderately moist and not too much exposed to the sun: when well rooted plant out in good soil eighteen to twenty inches apart; and another method of increase is to divide the old stools (=roots) and plant at once where intended to be grown.

Limnanthes Douglasii is a very pretty little annual, is well worth growing in every garden; its claim as a bee-flower has long been established, and its worth to the bee-keeper is fully recognised. Curiously enough in my apiary Douglas's Limnanthes is totally neglected by my bees, although I have had it in flower from May to August. Sow in August to flower the following May and June, and again in April, to succeed the August sown plants; transplant nine to twelve inches apart. Limnanthes is quite hardy and produces a quantity of seed, which should be gathered as soon as ripe: the richer the soil the more flowers are produced and the plants continue longer in flower.

Lucerne (*Medicago sativa*).—Flowers from May to July. Cultivation similar to Alsike, which see.

Mignonette (*Reseda odorata*).—This annual is such a favourite with every one that it seems superfluous to give any cultural directions; however, I apologise for any seeming presumption and will only say, sow the seed thinly from March to May in patches or broadcast, keep the plants free from weeds, and do not attempt to transplant the young seedlings, as they very rarely succeed being moved. In some seasons bees work very busily on mignonette.

Melilotus.—The etymological construction of the genus *Melilotus* is such that it would be a positive disappointment if honey did not make its appearance in some form or other, accordingly we find three species, viz., *M. alba*, *M. cærulea*, and *M. leucantha*, so far mellifluous that all three are recommended as worthy of cultivation, and are amenable to the same cultural treatment as Alsike.

Mustard (*Sinapis alba*).—Sow in drills six inches apart from March to July, or sow broadcast if small quantities are required. In summer the plant will bloom six weeks after being sown.—H. Dobbie, *Thickthorn, Norwich, January 22.*

(*To be continued.*)

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee meeting, held at 105 Jermyn Street, on Wednesday, January 21st, present the Rev. H. R. Peel (in the chair), the Rev. E. Bartrum, the Hon. and Rev. H. Bligh, Capt. Bush, R.N., Capt. Campbell, J. M. Hooker, the Rev. F. C. Jenyns, H. Jonas, W. Martin, the Rev. G. Raynor, the Rev. F. S. Sclater, D. Stewart, and the Secretary.

The Secretary presented the balance-sheet for the past year, and reported that the accounts had been duly audited on the 19th inst. Resolved that the balance-sheet be received and adopted.

The Chairman announced that the President of the Association had promised 10*l.* to be added to 5*l.*, given by himself, to be offered as three prizes, to be balloted for at the annual general meeting of the Association by those County Associations who had fulfilled the conditions of affiliation.

The Secretary reported that several communications had been received from the Secretary of the Lancashire Association recommending that a deputation do attend from the Lancashire and Cheshire Association to confer with the committee of the B. B. K. A., with the view of making an arrangement whereby the L. & C. B. K. A. might again affiliate itself with the B. B. K. A. Resolved that in accordance with the proposal made by the L. & C. B. K. A., Mr. W. B. Carr and Mr. J. M. Gibbs be invited to meet the committee of the B. B. K. A. on the 28th inst., at three o'clock.

The Sub-Committee appointed to consider and report as to the desirability of the Association adopting a standard size for 1 and 2-lb. sections presented their report, recommending that the standard of $4\frac{1}{4} \times 4\frac{1}{4} \times 2$ for 1-lb. and $5\frac{1}{4} \times 6\frac{1}{4} \times 2$ for 2-lb. sections be adopted by the Association as the standard sizes. Mr. Jenyns moved that the report be referred back to the Sub-Committee to consider whether it was not advisable to adopt the size of $8\frac{1}{2} \times 4\frac{1}{4} \times 2$ as the standard size for 2-lb. sections. This motion was lost, and it was unanimously resolved that the Sub-Committee's report be presented for the approval of the General Meeting to be held on February 11th.

The Annual General Meeting of the Association will be held on Wednesday, February 11th, at 3 p.m. The President of the Association will take the chair. The following special subjects are set down on the agenda:—

The report of the Sub-Committee appointed to consider and report on the adoption of a standard size for sections.

The Rev. H. R. Peel to move, 'That a certain fixed sum be invested annually on account of sums already received for life members' subscriptions, and that in future such sums as may be received shall be invested and not applied to the current expenses of the year.'

Mr. F. H. Lemare to move, 'That in future the name and signature of the member be omitted on the voting papers in the election of the Committee.'

BUCKINGHAMSHIRE BEE-KEEPERS' ASSOCIATION.

The annual general meeting took place at Aylesbury on January 15th, when the chair was taken by J. Bartlett, Esq., in the unavoidable absence of the President. After some opening remarks by the chairman, the County Secretary was called upon to read the annual report of the committee for 1884, and the annual balance-sheet. It is satisfactory to learn, from the report, that the total number of members has increased during 1884 from 230 to 339, and that there are for 1884

63 cottage members, against 27 in 1883; whilst the artisan members have increased from 63 in 1883 to 102 in 1884. The annual balance-sheet shows a considerable deficit; and the very large amount of work undertaken by the committee during the year clearly shows that they felt the importance of fully establishing the Association's usefulness and activity by a larger outlay than the funds in hand could meet, in the confident belief that this would secure for them a large increase of members in the future.

The district system has been greatly improved during the year, and eighteen districts now exist. Lectures have been delivered by Messrs. Baldwin, Blow, and the County Secretary, in various parts of the county. The bee-tent has been hired on thirteen occasions: an expert's tour in spring and autumn has been undertaken: fifteen successful exhibitions of honey, &c. (including the County Show at Aylesbury), have been held. Local advisers have been appointed throughout the county; and a large number of district and other meetings have taken place. It is satisfactory to learn that all this work is producing good result. Already fifty-five new members have joined the Association for 1885, and a sum of 5*l.* has been specially collected towards paying off the remainder of the debt upon the bee-tent. The committee has decided upon a most satisfactory programme for 1885; and we are pleased to notice that it has introduced forms of application for the *Bee Journal* circulation, and expert's tours, which will save much waste of time and money in cases where the privileges of the Association are not fully required.

After the report had been considered and adopted, and the balance-sheet passed, a discussion was raised by the chairman as to the desirability of increasing the terms of subscription payable by cottagers and artisans. We are pleased to hear that the general feeling of the meeting appeared to be against such a change, which, in our opinion, would tend to lessen the interest taken in the work of Bee-keepers' Associations, and to decrease their usefulness to the labouring classes of England.

After votes of thanks had been passed to the president, vice-presidents, and committee, they were unanimously re-elected. The meeting terminated with a vote of thanks to the chairman, after which the members for the new year drew for three prize hives, which were won by—(1) W. Selvidge, Slough; (2) W. Needham, Lillingstone Dayrell; (3) P. Williams, Eton.

DERBYSHIRE BEE-KEEPERS' ASSOCIATION.

The third annual meeting of this Association was held in the Guildhall, Derby, on Friday evening, January 23rd, Mr. Ald. Hobson (ex-Mayor) occupying the chair. There were also present Lord Denman, Mrs. Hurt (Littleover) Mr. H. V. Edwards, Mr. Councillor Holbrook, Mr. W. T. Atkins, Mr. W. G. Copestake, Mr. W. Handby (Hasland), Mr. H. Daniel (Burton-on-Trent), Mr. W. Newton (Burton), Mr. D. Cooper, hon. secretary, and others. The secretary read the annual report:—

In presenting the third annual report to the members of the Derbyshire Bee-keepers' Association, the committee had pleasure in reporting a slight improvement in the position of the Association, there being a balance of 4*l.* 13*s.* 11½*d.* The number of members had increased from 172 to 207; and, with the exception of not having sufficient funds to enable the expert to make a second visiting tour to the members in the autumn, there would be nothing of an unfavourable character to report, the honey season having been the best for some years past. Several interesting and instructive lectures had been given by the Rev. G. Shipton, at Ashover, Baslow, Barlow, Whittington, Duckmanton, and Whittington Moor; and by Mr. W. Walker at Cromford and Holloway. A bee-tent having been purchased by the committee, instructions in the manipulation of bees, illustrated by bee-driving, &c., in the tent, were given by the Rev. G. Shipton, at Chesterfield, Clay Cross, Riddings, Eckington, and Barlow; and by Mr. W. Walker at Matlock Bath and Cromford. The expert, Mr. William Handby, commenced his visiting tour in April, and reports that in 35 days he made 151 visits, and examined 674 hives—396 bar-frames and 278 skeps; that the cost of visiting amounted to 15*l.* 1*s.* 11*d.*; that he entered 52 new members, received 2*l.* 3*s.* as donations to the bee-tent fund, and visited eleven local shows, viz., Derby Arboretum, Tibshelf, South Wingfield, Cromford, Riddings, Matlock Bath, Barlow, Chesterfield, Clay Cross, Eckington, and Derby. An examination of experts for third-class certificates was held during the first day of the show, for which there were four candidates—three Derbyshire and one Staffordshire—all of which gained certificates. Your committee feel that they cannot conclude their report without an acknowledgment of the gratuitous and able services of the Rev. G. Shipton, judges, and other gentlemen, who, by their lecturing and assistance, have done so much to further the object of this Association. The thanks of the members are also due to the Derbyshire Agricultural Society, who kindly permitted the Association to hold its annual show in their grounds.

The report and balance-sheet were adopted, and on the motion of Mr. Newton a vote of thanks was passed to the retiring officers. The Duke of Devonshire was re-appointed president; the whole of the vice-presidents were re-elected, and also the committee, with the exception of Mr. W. T. Atkins, who took the place of Mr. Goodwin. Mr. D. Cooper was unanimously elected secretary. Mr. H. Daniel, the Burton secretary, resigned, and Mr. Wm. Newton was appointed to succeed him, a vote of thanks being passed to the former for his two years' services.

The drawing for the two prize hives then took place, the successful members being Mr. W. G. Saxton, Doe Hill Station, and Mrs. Hurt, Littleover. A vote of thanks to the chairman terminated the proceedings.

HUNTINGDONSHIRE BEE-KEEPERS' ASSOCIATION.

The second annual meeting was held at the Fountain Hotel, Huntingdon, on Saturday, January 10th, at 2 o'clock p.m. A. W. Marshall, Esq., the treasurer, took the chair. The meeting was a fairly good one, many being prevented from attending by the unfavourable weather. The report and balance-sheet, read by the Hon. Sec., Mr. C. N. White, were adopted, and ordered to be printed and circulated. There was considerable discussion as to future procedure, it being thought by many that the bee-tent should only be erected at the annual show, and that the members, particularly the cottager class, should be visited by an expert. The question of expense arising, Messrs. C. N. White, J. H. Howard, J. Edey, and E. Woodham, promised to act as district advisers, the Hon. Sec. being instructed to invite other gentlemen to allow their names to be added to the list. The committee of management was then elected. Mr. C. N. White was re-elected hon. sec., with a hearty vote of thanks for his past services. A. W. Marshall, Esq., was re-elected hon. treasurer, and the names of several gentlemen were added to the list of vice-presidents. The representatives to the B.B.K.A. quarterly meetings were J. Linton, Esq., Buckden Wood, Huntingdon, and Mr. J. Edey, St. Neots. After the close of the business, Mr. Howard delivered a very interesting address on 'A Cottager's First Steps in Modern Bee-keeping,' for which he received a cordial vote of thanks.

NORTHAMPTONSHIRE BEE-KEEPERS' ASSOCIATION.

The Northamptonshire Bee-keepers' Association held their annual meeting at the Lecture Hall, Gold Street, Northampton, on Saturday, the 24th January, 1885, which was fairly well attended, J. Rooke, Esq., of Weldon Grange, in the chair.

The balance-sheet, which showed a slight improvement on last year's, was presented and passed, and a number of copies ordered to be printed for circulation among the members. The president and vice-presidents were re-elected, and the name of Lady Knightley added to the latter.

Mr. J. E. L. Gilbert, Northampton, was elected hon. secretary in the place of Mr. J. Davies, resigned, and Mr. J. Francis, Northampton, was re-elected hon. treasurer. The local secretaries are: The Rev. J. Phillips, M.A., Weston Favell; Mr. W. R. Parke, Wellingborough; C. Pell, Esq., Wellingborough; Mr. Manger, Kettering; the Rev. A. W. Durham, M.A., Newnham; J. Rooke, Weldon Grange; Mr. J. Bull, Ringstead; Mrs. Alderson, Holdenby Rectory; Miss Bevan, Brixworth Hall; Mr. Perry, Banbury; Mr. D. W. Brearley, Denton; Mr. W. E. Stimpson, Northampton; Mr. F. Longland, Castle Ashby; Mr. R. Hefford, Boughton; Mr. A. T. Adam, Crick; Mr. Wilkinson, Thrapston. The committee of management consists of the local secretaries, with the hon. secretary and hon. treasurer.

The bee-tent of the Association attended eighteen flower-shows, and entailed a loss of nearly 6*l.* 10*s.*, and the amount of subscriptions and donations was about 10*l.* less than 1883.

In spite of the above drawbacks the committee, by rigid curtailment of unnecessary expenses, have been able to reduce the amount of their liabilities, and they are sanguine that, with an increase of subscriptions and a more successful year with their bee-tent, they shall be able to clear off during the present year a large portion of their liabilities.

SOMERSET BEE-KEEPERS' ASSOCIATION.

The annual meeting of the Somerset B. K. A. was held on Thursday, January 22nd, at Bath, under the presidency of H. D. Skrine, Esq. The report of the hon. sec. was adopted, and the accounts passed unanimously. The Rev. Charles G. Anderson was unanimously re-appointed the treasurer and hon. secretary for the ensuing year. The Association has made a considerable advance during the past year, and is now in possession of a complete bee-tent.

STAFFORDSHIRE BEE-KEEPERS' ASSOCIATION.

The annual general meeting took place at Stafford, on January 22nd. Mr. H. J. Beaumont Piercy was voted to the chair, in the much-regretted absence of Lord Wrottesley, who was expected to preside. There were sixty members present. After the minutes of the last meeting had been read and passed, the secretary read his report of the work of the past year, from which it is clear that the Association has done some good work, and made satisfactory progress. The expert, Mr. A. W. Rollins, paid spring and autumn visits to the members, and visited in spring 122, and in autumn 192 apiaries, examining 397 stocks of bees in spring, and 961 in autumn. The bee-tent belonging to the Association has been engaged during the year at nineteen shows and fêtes—altogether on twenty-four days, and has handed over a balance of 13*l.* 17*s.* 1½*d.* to the Association, after paying all expenses incurred by it, which will prove how popular the art of bee-keeping has grown in the county. The *Bee Journal* is being widely circulated through the county; thirteen copies are being distributed amongst the members, at the expense of the Association. The committee have arranged a system of local government for the future, to be carried on by twenty 'district secretaries,' who have undertaken the office, in their twenty respective districts. A meeting is to be held shortly, when their work will be clearly defined, and it is to be hoped they will work well together, and extend the influence of the Association in every part of the county. The Annual Show took place at Stone, on August 27th and 28th, when 13*l.* was awarded in prizes. There were seventy-two entries in the nine classes. There were seven candidates for the third-class B. B. K. A. certificate for proficiency displayed in the management of bees, which were awarded to Messrs. S. Farrington, George Farrington, E. Clowes, J. Leake, G. Handley, S. Warren; and, since that date, Messrs. George Farrington and John Leake have been awarded the second-class certificates from the same source. The Rev. F. S. Selater was appointed judge by the B. B. K. A. for the second-class certificates, and further judged the exhibits in the show to the satisfaction of all. There have been held five committee meetings during the year, with an average attendance of ten. The officers of the past year having resigned office, Mr. A. H. Heath was re-elected secretary and treasurer, the Rev. D. Glennie, auditor, and a committee of twenty-six were elected, including the above-mentioned district secretaries, to hold office for the present year. A lottery for four bar-frame hives created some amusement, and the hives, which were in the room at the opening of the proceedings, attracted worthy attention, being the work of four members of the Association. A motion, proposed by an over-scrupulous member, that there should be no more lotteries, was overruled by a large majority; and the meeting decided to continue them in future.

The statement of the treasurer showed that the Association had been a financial success during the past year, and a vote of thanks to the chairman brought the proceedings to a close.

APIARIAN SOCIETY FOR THE NORTH OF SCOTLAND.

On Saturday, January 3, a meeting of those favourable to the formation of an Apiarian Society for the North of Scotland was held within the West Front Room of the Music Hall Buildings, Aberdeen. Among the gentlemen present were Messrs. John Ledingham, Skap, Turriff; Alex. Finlayson, writer; Rev. W. Innes, Free Church Manse, Skene; G. D. Collie, advocate, Aberdeen, &c. On the motion of Mr. G. D. Collie, Rev. Mr. Innes, Skene, was called to the chair. The Chairman introduced the business in a few remarks, stating that the matter of bee-culture was one of growing importance. Many were prosecuting bee-culture very much in the dark; and a society such as it was now proposed to form would give a great stimulus to the study of the subject, and would be particularly interesting to the young. It would also promote the interests generally of bee-culture among the rural population. The Secretary, Mr. Alex. Finlayson, stated how the idea of the society had originated, and mentioned that he had received returns from fifty-six gentlemen stating they were anxious that such an Association should be formed. Another gentleman had written to say that he could guarantee ten additional members, so that together they would have sixty-six members to start with. Mr. Collie then formally moved that an Apiarian Society be formed for the North of Scotland, and that a committee be appointed to draw up the rules. Mr. M'Gregor, Inchmarlo, seconded the motion, which was unanimously adopted. In reply to a question by the chairman, the feeling of the meeting was in favour of not appointing the committee until after the first show should be held. On the motion of Mr. Tait, Foveran, seconded by Mr. M'Farlane, Old Aberdeen, the meeting

constituted the committee with power to add to the number, and Mr. Finlayson moved that Mr. Innes be appointed chairman, but that gentleman could not see his way to accept office. On the motion of Mr. Grant, Logie Buchan, Mr. Tait was then unanimously appointed chairman. Mr. McGregor was chosen vice-president, and Mr. A. Finlayson secretary and treasurer. The following were appointed a Committee of Management till next annual meeting:—Chairman, Mr. Tait, Foveran: Vice-chairman, Mr. McGregor, Inchmarlo: Committee, Rev. Mr. Innes, Free Church, Manse, Skene: Mr. Beveridge, Beath Villa: Mr. G. D. Collie, Viewbank, Cults: Mr. Cockburn, Cairnie, Keith: Mr. Fraser, Schoolhouse, Dyce: Mr. Grant, Logie Buchan, Mr. Green Douglas, Bridge Cottage, Cluny: Mr. J. K. Ledingham, Slap, Turriff: Mr. M'Farlane, Old Aberdeen: Mr. Mackay, Dunbeath, Caithness: Mr. Ogg, 6 Crimon Place: with power to add to their number. The committee are empowered to draw up rules and regulations for the conduct of the Association.

NORTH-EAST OF IRELAND BEE-KEEPERS' ASSOCIATION.

At the third of a series of meetings held in connexion with the above Association at 21 Waring Street, Belfast, on Friday evening, 9th January, Mr. Paul McHenry read a very interesting paper entitled 'A Bee-keeper's Experiences.' John K. McCausland, Esq., Vice-President of the Association, occupied the chair.

Mr. McHenry, after giving a short sketch of bee-keeping from the earliest ages commencing with Aristotle, some 300 years B.C., and noting the various discoveries which had been made from time to time by Schirach, Réaumur, Butler, Purchas, Wildman, Swammerdam, Huber, and others, and the benefits they conferred on the bee-keeping world; the formations of bee associations in Germany in 1765, and the outcome of the same; the offering of premiums in same year by the Society for the Encouragement of Arts, Science, Manufactures, and Commerce, amounting to 400*l.* in all to encourage bee-keeping; the impetus this gave to the study was such that forty-two works on the subject were published in the six years following. The subject of hives and their inventors was then fully gone into, commencing with Maraldi, 1712, who brought out a glass hive by which bees could be seen working, and the economy of the hive thus studied, also showing the practical improvements which have from time to time been made by Huber, Langstroth, and the late T. W. Woodbury, who did so much to advance English bee-culture. The essayist then pointed out the strides rational bee-keeping had made in Great Britain and Ireland, since 1874, in which year the B. B. K. A. was formed; and the results which followed the tour of the two experts through Ireland in 1880, viz., Messrs. Abbott and Carr; also their report to the B. B. K. A. on Ireland as a country suited for bee-culture, which was so interesting that he quoted it in full. These gentlemen pointed out the total want of knowledge which existed as to the proper means of obtaining honey without having recourse to the sulphur-pit; the great amount of bee-floral luxuriance which abounded all through the parts of Ireland they had travelled, embracing Maryborough, Clonmel, Newtonards, and various other districts. After this the Co. Armagh B. K. A. was formed in 1881, and to the untiring zeal and energy of Messrs. Lett and Greer the present position of bee-keeping in the North of Ireland is in a great measure due. This Association was amalgamated with the North-East of Ireland B. K. A. in July 1884, and at present is in a very healthy condition, the members owning over 300 bar-frame hives. Mr. McHenry then went fully into the means which he adopts, and which he finds fairly successful, commencing with the class of bees, hives, time for spring feeding, and the necessity for same; when and how to super: the duration of the honey harvest in his neighbourhood: the preparation of stocks for winter, and said the key to successful bee-keeping was acting on Oettl's golden rule, 'Keep your stocks strong.' He advocated bee-keeping as a profitable pursuit, even when it did not pay, the watching of the very interesting movements of the bees afforded pleasure, health, and recreation. He then recommended bee-keepers to grow crocus, limnanthes, arabis, and borage; and said, although he had read to the contrary, he had proved bees will pasture at home if means are provided for them to do so; and where possible to prove things for themselves—it would give them some trouble, but they would be all the better for it. He recommended all going in for bee-keeping to join the N. E. I. B. K. A., stating that it brings bee-keepers together, and that there are at present members who have given the study much time and attention, both able and willing to give advice to beginners, and concluded by hoping that the year they had just entered on would be a happy one for bee-keepers and a prosperous one for the N. E. I. B. K. A.

The paper was then very favourably criticised by several of the fraternity, and a cordial vote of thanks to the essayist and chairman brought the meeting to a close.

PRACTICAL BEE-KEEPING.

(Read at a meeting of the Huntingdonshire Bee-Keepers' Association.)

I was invited some weeks ago to read a paper upon this occasion with reference to the above, which I had great pleasure in doing, feeling sure that the remarks, I am about to make, being based upon nothing short of practical experience, will prove in some degree useful to the bee-keeping fraternity.

Having satisfied myself as to the best kind of hive to use, and the most pleasant and profitable course to pursue in bee-keeping, I am quite willing to give my experience for the benefit of others. I do not, of course, expect my system to meet with the approval of everyone; different bee-keepers have different ways of working. Some go in entirely for comb honey and others for extracted honey. But my experience is that it is best to work our apiaries for both kinds, the demands for such being about equal—at all events, such is the case with myself. I find, too, that the demands are larger every year; therefore I want as much honey as I can possibly get with an increase of stocks at the same time, to enable me to get more honey in future. But how to get an increase of stocks without diminishing the present yield of honey has been a difficulty I have laboured hard to overcome. Most bee-keepers appear to be agreed that if increase of stocks be obtained through natural or artificial swarming, the yield of honey will not be so large the same year as would have been the case had swarming have been prevented. But having studied the subject for several years and tried several experiments, I have so far succeeded in surmounting the difficulty that I am able to get an increase of stocks to the extent of 50 per cent of the original number in one year without the sacrifice of a single pound of honey.

I also have a system that will entirely prevent swarming when increase is no longer desirable. It is nothing unusual to hear bee-keepers speak of swarming as 'a very great nuisance.' In the spring it causes them a lot of trouble and anxiety, and also unnecessary expense for hives, &c., and in the autumn they are at a loss to know how to dispose of their surplus stocks to the best advantage. They try some so-called non-swarming system, but fail to accomplish the desired object, and conclude that whatever may be said or done bees will insist upon swarming. Such, however, is not the case. I am quite

sure that if I had a given number of stocks in the spring and did not want any further increase, I could go through the season without making a single artificial swarm, or running the risk of a single natural swarm issuing. The process is most simple, and which I shall explain further on. But if we are to manage our bees with the maximum of pleasure and profit and the minimum of labour and annoyance, it is of the greatest importance that good hives be used, not only well made, but of such a description that will give the best facilities for manipulation and the largest yield of honey. It is not, however, my intention to dwell upon the hive question—that would require a lengthy paper of itself—suffice it to say, that during the last six years I have made and used a great many different kinds of bar-frame hives; and having done so I do not hesitate to say there is none to equal, to say nothing about surpass, that known as the 'Combination hive,' which should hold at least twenty British 'Standard' frames, for while such a hive combines every advantage, it is at the same time free from every disadvantage. I am the more bold in making this assertion because the decision I have arrived at in this respect is fully endorsed by nearly every advanced bee-keeper I know—especially those of many years' experience.

We will take it for granted, then, that our bees are in such hives, and for sake of argument will suppose that we have twelve stocks, six for supering, the rest for extracting; taking it also for granted that we want both kinds of honey. In the spring we must stimulate the whole of our stocks in the usual manner; but it being more difficult to get a given number of sections beautifully filled with white honey-comb than to obtain the equivalent in extracted honey, we must, in the first place, make comb honey our special object, and get our sections filled as early as possible; the earlier we can produce them the higher prices they will realise. Therefore stocks that are to be supered must be built up early in the season; and for doing that I know of no better method than the following.

When the whole of our stocks are breeding well and the weather is warm (say in April) those set aside for supering should be gradually strengthened with brood from the other hives until they contain ten frames each; any of these that are only partly filled with brood should be exchanged for full ones from the hives that are to be extracted. It might appear at first sight that in adding so much brood to our stocks that are to be supered the queens of the same would be 'crowded out,' but if it be borne in mind that *ripe* brood is recommended, the difficulty will at once disappear. Brood being rapidly hatching out from the whole of the frames will not only give plenty of room for the queen to continue laying her regular number of eggs, but will bring the stock up to such extraordinary strength, and at such an early date, that supering will be necessary much earlier than would otherwise have been the case, the result being that the very first flow of honey that comes will be deposited in sections. When the bees are about to swarm, which will probably occur by the time they have filled the first set of sections, and which will be indicated by their clustering at the entrance of the hive, or raising queen-cells, which can be easily ascertained—it will then be necessary to remove the super, slip back the ten frames of brood from the front to the back of the hive, replace them with seven frames filled with worker foundation, and place quilt upon the same. The frames of brood should then be taken out and the bees shaken back into the hive close to the frames of foundation, under which they will quickly run; and when clustered upon the foundation the same should be closed up with dummy, the quilt removed, and the super returned. The whole of the operation need not occupy more than ten minutes. The bees will work in the super with increased vigour, and will show no further signs of swarming throughout the season. The foundation will be worked out into complete combs in about two days, and there being only seven in the place of the ten removed, the bees will be more than ever crowded into the super; and it may be advisable to add a second crate of sections: but this should not be done unless absolutely necessary, for, seeing that we have taken away the whole of the brood, there will be no further increase for three weeks, and if too much super room is given sections will not be filled either so neatly or so rapidly.

The question now arises, what are we to do with the ten frames of brood just removed from our supered stock? We will leave them for a moment and turn our attention to the stocks that are to be worked for extracted honey, and which, having been robbed of some of their early brood, have not as yet been in a position to gather much surplus honey; but while our first lot of stocks are filling the first set of sections, the second lot, —that is, those that are to be extracted, will be occupied principally in brood rearing, and by the time our supered stocks are ready to swarm the others will have been built up into stocks of about ten frames each, and the hives being large enough to hold twenty such frames, those ten taken from the supered stock can be added, and should be placed alternately with those already in use. There will be several queen-cells upon the combs taken from the supered stock, but they need not be interfered with, for when such are placed in strong stocks they are allowed to remain a certain time uninjured. Therefore we can leave them for the present in perfect safety. A few days later on the stock must be examined for the purpose of finding the queen. The comb upon which she is found, with also a second comb of brood honey, pollen, and adherent bees, must be put into a new hive and placed upon a new stand, the two combs being closed up with dummy and the entrance of hive narrowed so as to admit not more than two bees at a time. This nucleus, small as it is, can, with a little care, such as feeding a little at first, and so on, be built up into a stock by the end of the season equal to any in the apiary. The hive to be extracted will now contain eighteen frames, which must be carefully examined, and every queen-cell, except one, removed. Some advise that it is best upon such occasions to leave two cells to insure against failure, but my experience is that there is nothing more productive of failure. Far better lose a young queen, especially when there are plenty on hand, than a swarm from an 18-frame hive, which would be sure to issue if the two queens hatched at one time, and if such occurred in the absence of the bee-keeper loss would be almost inevitable. But if only one royal cell is left there is no such risk to run. By the time the young queen has hatched out and become fertilised the greater part of the worker brood will also have hatched, and it then being the midst of the honey season the cells will be filled with honey as fast as the young bees leave them. We can then extract to our heart's content, and thus not only make room for more honey, but also for the young queen to lay her eggs, and no swarming, or signs of swarming, will occur. Having treated the whole of our twelve stocks in the manner I have described, we shall be in possession of eighteen stocks, or, in other words, have increased 50 per cent; and I think it will be very plainly seen that by working upon the above system we shall get more honey of both kinds than would have been the case had each hive been left to its own merits. We shall also avoid a very great difficulty by having nothing but old combs to extract from, while our newly built ones, which are tender and always very difficult to handle, are being used for breeding purposes, and thus getting toughened in readiness for extracting purposes the next year.

When we find that we have nearly as many sections filled as we shall be likely to require, and wish to get more extracted honey, the supers from two stocks, which we will call A and B, can be removed, the brood taken from A and given to B, which is now to be worked for

extracted honey. Stock A must be replenished with six or seven frames, filled with worker foundation, to be worked out and filled with stores for winter, which will probably be as much as the bees will do, the best part of the season being over when the operation takes place. If the queen in stock B is over three years old she should be destroyed, and steps taken to induce the bees to raise several queen-cells, all of which can be left until they are about ready to hatch; all spare ones can then be removed and utilised for re-queening stocks that have aged, or other undesirable queens. We shall thus keep the whole of our stocks headed with young prolific queens, all of which will have been reared under natural, and therefore the most favourable circumstances, without breaking up or in any way injuring a single stock for queen-rearing purposes.

When I have as many stocks as I want and wish, to prevent further increase, I shall work upon a system similar to that described; that is, I shall strengthen my stocks for supering in early spring with frames of brood from the other hives. When they show signs of swarming, I shall take away the brood, and add the same to the hives that are to be extracted; but instead of taking two frames of brood, &c. from the latter for the purpose of starting a fresh stock, I shall simply destroy the queen, and every queen-cell except one. I shall thus entirely prevent swarming, both with my supered stocks and those to be extracted also. The hives that are supered one year will be the ones to be extracted the next, so that every queen, when in its third year, at which time its prime is passed, will be destroyed.

With a dozen stocks I should require 7 lbs. of foundation to carry me through the season; at the end of the season I should have forty-two spare combs, which I should melt down into wax, and which would realise nearly enough to cover cost of foundation. Old combs would of course be selected for the purpose. Thus my apiary would not only be free from old queens, but worn-out combs also. I should require no new hives, nor should I have any expense whatever to meet, except that for sections and sugar for feeding.

There is one more question I would like to touch upon before concluding my paper. I refer to the removal of the queen, which some appear to have a great objection to: for while admitting that such a process increases the present yield of honey, they contend that the future prosperity of the stock is injured. Such, however, is not my experience. I first tried the method two years ago, and when going into winter quarters with thirty stocks, the best of the whole lot was one from which the queen had been removed during the honey season, and a young one hatched out. The same thing has occurred again this year, which inclines me to the belief that the young queen, coming out in full vigour, will more than recoup the time lost through the removal of the old one. If there is anything in my system that is not clearly understood, I shall be pleased to endeavour to make it more plain: and if any one can suggest an improvement, I hope they will do so, so that we may each benefit one another, and thus be able to work upon the best and most profitable system in practical bee-keeping.—A. Sharp, *The Mill Apiary, Huntingdon.*

Foreign.

ITALY.

The *Apicoltore*, which with the present number enters upon the eighteenth year of its existence, publishes the official list of the prizes awarded in the Apicultural section of the National Exhibition, held at Turin in the autumn of last year. The gold medallists are four in number, two of whom are well known in England as breeders and exporters of Italian queens, viz., Signor Giacomo Bertoli of Varallo-Sesia, and Signor Lucio Paglia of Castel S. Pietro, near Bologna.

The Rev. Giotto Ulivi, of Pievano in Campi-Bisensio, Tuscany, whose bee-hive and principle of culture are well known to the whole bee-world as the 'Giotto' hive or the 'Giotto' principle, has decided upon publishing a monthly journal under his own editorship, to be called *L'Apicoltura Razionale risorta in Italia.*

FRANCE.

The general annual meeting of the members of La Société d'Apiculture de la Gironde was held at Bordeaux on the 12th of December last. Mons. Contiège, general secretary of the Society, in the chair. In the course of the proceedings, the treasurer handed in his report of the results obtained from the apiary of the Society last year, and the figures show that the honey harvest amounted to 430 kilos. (the kilo. is 2¼ lbs.), 330 of which had already been disposed of at 90 centimes (9 pence) per kilo., less discount. A comparison shows that the revenue derived by the Society from its apiary was, in

1881	68.90 frs.
1882	219.40 ,,
1883	306.55 ,,
1884 about	400 ,,

The meeting expressed their satisfaction at this steady increase in the revenue of their apiary, and after an exchange of a few remarks of a general character the members dispersed.

The *Bulletin de la Société d'Apiculture de la Gironde*, of Bordeaux, like the majority of the other Continental Bee Journals, reproduces Mr. Cheshire's recent communications regarding foul brood.

CUBA.

Bee-keeping on this island is in the experimental stage as yet. This apiary, being the first and only one run on the moveable frame plan, has not been established long enough to fully demonstrate whether it can be made a success or not. As you perhaps know, the principal honey flow comes here in the winter months, and the amount of honey in the flowers at that unnatural time of the year is most astonishing, for in an experience of many years, and extending over a wide range of country (California included), I have never seen any plant that surpassed the bell-flower of Cuba for amount and quality of honey.

This great flow of nectar, coming as it does in the winter, has one advantage—that is, the apiarist can run his bees up as strong as it is possible to do, and there is not the slightest danger of swarming. At first thought the northern bee man might think this a consideration not to be lost sight of, and in fact it is in one sense, in another it is not. We must who remember that December, January, and February, are winter months, and that it is winter time with the bees. Although they are in the tropics, their nature is not materially changed, and long before the honey flow commences (which is usually the first of December), the bees tell the apiarist that winter is approaching, by the queens refusing to lay as they do in the spring; by their sealing up all air-holes; by the complete slaughter of all drones; by the absolute absence of preparations to swarm: by the cross and petulant disposition of the workers, and by their disposition to ball and kill the queens when they are disturbed. All these go to show that winter is close at hand. But winter does not come with the severity that it does in the north. The sun shines, and it is nice autumn weather; the flowers bloom, and the bees gather what honey they can in the short days, and with their small force of workers. But after they get the honey stored, it is a job to take it from them—they are so very cross. There is one thing in favour of this winter flow that I did not mention, *i.e.*, it lasts for two months good, and for six weeks more about half a flow.

Did this winter honey-flow come in the months of

April and May, enormous results could be realised, for by the first of April the colonies are strong: but then the surplus season is gone, and the apiarist has on his hands full colonies, with no use for them except increase. There is a surplus of bees on hand, out of season, for swarm they will, and by so doing they reduce their strength to go through the four months' dearth of honey that is to follow the last days of June. Then feeding has to be resorted to, or many colonies will perish, and the moths destroy the combs.—A. W. OSBURN, *San Miguel de Jaruco, Cuba, Dec.* 10.

BEE-KEEPING IN INDIA.

In your review of my 'little book, you were kind enough to point out two apparently erroneous statements; please accept my thanks. Should a second edition of the book be published there are several points in which I am conscious it might be improved. The statement, 'The queen lays queen, worker, and drone eggs,' appears to me a perfectly correct one, it would, however, be less likely to be misunderstood if stated differently, *e.g.*, 'The queen normally lays all the eggs which hatch into queens, into workers, and into drones.' I am quite aware of the whole course of the controversies on the determination of the sex of the egg or larva; but I think, avoiding all controversial matter, an egg laid in a queen-cell and hatching to a queen is in plain language a queen egg, notwithstanding the admission that the same egg laid in a worker cell would have hatched to a worker; it is not a worker egg, and it is more correct to say queen eggs may be changed to worker by transference to worker cells than to insist that there are no queen eggs, but queens are hatched from worker eggs. In bee-keeping technical phraseology, it is generally stated that queens are hatched from worker eggs, because the process of hatching a queen from an egg which would otherwise have hatched to a worker is familiar, whereas the converse is not: still it is illogical, for an egg laid in a queen-cell and hatched to a queen cannot justly be termed a worker egg, and obviously the existence of the queen and queen egg must have preceded in time that of the worker and worker egg. You also state 'Wax is the only means of fixture' of the combs to the frames. I have handled many combs new and old, and a new almost white comb certainly does not appear to be fixed with propolis, it is difficult to distinguish the propolis in an old comb; it seems to me the wax fixing the comb differs from ordinary wax. I have not, however, tested it. I concluded you were correct, and even admitted my error: but knowing I must have had some grounds for my assertion, I looked up the subject in a few books. I find it is generally accepted that propolis is used with the wax in fixing the combs, although it is not added immediately the comb is commenced—Vide, Dzierzon's *Rationelle Bienenzucht*, p. 35 (edition, Brieg, 1878); Vogel, *Die Honigbiene*, p. 59 (Mannheim, 1880); *Die Bienen Zeitung*, republication systematically arranged; Cook's *Manual of the Apiary*, p. 113, &c. I have evidently sinned in good company, but I will make some observations as opportunity offers; it seems to me probable on *à priori* grounds bees would so use propolis when available.'

* Notwithstanding the above special reasoning of our correspondent, we venture to hazard a conjecture that should a second edition of his *Handbook* be called for, we shall find that our friendly remarks have not been unheeded, and that he will declare that the queen-bee lays only two kinds of eggs, worker and drone. When he has completed the 'observations' he purposes to make to prove that propolis is used in the attachment of the comb to the frame, we shall be pleased to have the opportunity of transferring them to our columns. In the meantime we would suggest that the declaration that honeycomb 'is fixed firmly to the top bar and sides by means of propolis,' should be considerably modified.

The following news may interest your readers:—I have an Italian queen, bred and impregnated in India; not having made the journey from Europe she is very prolific, and I have had to remove her stock from the apiary, as they robbed the others and removed all the stores from one of the other hives. I tried all the usual means to stop the robbery, but found removal the only practicable alternative. A rag dipped in methylated spirit actually drove away the robbers for one day; kerosene oil and solution of carbolic acid had no effect. I have three other stocks of Italians, weak, but doing well, and one very weak and vicious stock with an inferior queen. I had foul brood in one stock, and it apparently spread to another; I kept the bad stocks going by brood from a third stock; I destroyed their brood twice, I sprayed, disinfected, and fed on medicated syrup, and changed the hives, but without curing the disease, which threatened to terminate disastrously my attempt to introduce Italians. I tried phenol, but the diseased stock remained diseased. I then concluded the queen must be the cause of the mischief, as her brood was mostly drone, so I destroyed the queen and gave the bees a frame of eggs and brood; they reared a new queen, who commenced to lay three weeks afterwards, and the disease disappeared. The queen destroyed, and the inferior queen I have still, were both imported in queen-boxes with very few bees. I find queens should be imported in nuclei in well-ventilated boxes. I have a queen who has been in India two years, she is very prolific, and her bees are very good-tempered. Of thirteen queens imported, I have only saved three good ones, and one bad one; two of the good ones only arrived in September last, and may fail. I am of opinion the Italian bees will do very well in India after I have bred some queens here, which I hope to do this season; the queens lay, and pollen is obtainable, all the year round.

Apis indica, var. Bhootan, is a larger bee and an undescribed variety or species; its cells are 5½ to the inch, and the bee when distended is much like an Italian. It is an elevated region bee; it works earlier and later than the Italians at present; it is exceedingly mild in disposition, and is said to fill its hive with bees and comb. I have a stock under observation; several other stocks are being observed. Captain R. Fulton, of the Bengal Staff Corps, keeps this bee in Bhootan, and from this gentleman I obtained a stock. I do not anticipate this variety will prove equal to the Italian.

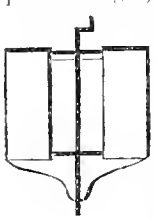
I find *A. indica* very liable to moth, permitting the moth to collect on the floor-board undisturbed. The Italians, even in weak nuclei, are proof against the moth, although here the warm, damp climate is extremely favourable to moth. The largest yield from any hive of *Apis indica* cultivated in a favoured locality by a European bee-keeper of several years' experience in Australia has been 30 lbs. of honey, but this appears to be exceptional; the variety is greatly inferior in every way to the European varieties, and its yield far more precarious. The variety cultivated on the Himalayan slopes I hope to replace by the Italians; with ordinary success Italian nuclei will be issued to a dozen persons in different parts of the country during this season.

I have set before myself the task—1stly, of examining the several varieties of the honey bee indigenous to India and its dependencies, with reference to economic value and natural affinities, working out a classification of these insects on morphological grounds; 2ndly, of introducing the Italian bee to take the place of the very inferior varieties of *Apis indica*, and introducing modern bee-culture to the natives of India; 3rdly, of finding if any Asiatic species or variety exists which would prove on cultivation superior to the hive-bees cultivated in Europe and America.

The descriptions of persons unacquainted with bee-keeping are of little or no value, I am therefore keeping each variety likely to prove valuable. *Apis dorsata* I am

convinced is unsuitable to cultivation in Europe, it is a widely different species from *A. mellifica*, so that a cross appears impracticable, but I think I have at last discovered a variety of *A. indica* which may be of use to European bee-keepers. This bee is cultivated in stone bee-houses sometimes 25 feet high; it appears to be larger than *A. ligustica*, judging from the dead specimens I have, and I am about to send properly made portable hives for two stocks. The result of my observations I will communicate as soon as known. As I am working in the interests of European bee-culture as well as for the benefit of our Asiatic fellow-subjects, I should feel obliged by specimens of queen, drone, and worker, of the varieties cultivated in Europe and of the Egyptian bee. These are required for comparison, and would be preferred if killed by immersion in a very weak spirit, the spirit being gradually strengthened until equal parts of strong spirit and of water are present. Dried specimens thoroughly dried and packed in pill-boxes with scraps of thin paper (not cotton wool) would be of great use.

I find the single extractor like Abbott's 'Little Wonder' very laborious to use, and I attribute this to a defect in the principle. A much better cheap extractor may be made by making *two* shallow cans somewhat like the Abbott can, but open top and bottom for convenience in cleaning: these cans are fastened together so as to be 10 or 12 inches apart, and are supported by a central wire or rod bent thus: ⌐ ⌐ Below the cans are joined by a funnel opening below. Two combs being put in, the extractor is supported by the left hand and spun with right, the honey falls through the funnel into a pail or other vessel, in which the rod rests. I use a can with a simple centre step soldered in the bottom; as each can is filled its cover is put on and it is replaced by an empty one. This extractor is not at all fatiguing to use, and is exceedingly cheap; it is most effective. The netting used is common half-inch mesh, and all the honey can be immediately extracted from thin weak combs of *A. indica* without injuring the combs, the greater part of the tin used should be a common thin quality, stout strips being only used for attachment of the cans to each other and to the central rod. Instead of using the left hand alone as a support, a piece of wood with a hole through it, pressed against the wall, may be used and is more convenient; when the speed is gained the machine is allowed to run, it does not require further driving as the balanced combs act as a fly-wheel, This extractor is sufficient for small apiaries, it will extract from one comb or from two at a time.—J. C. Douglas, *Calcutta, December 30th*, 1884.



Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of December, 1884, amounted to 2729*l.* [From a private return sent by the Principal, Statistical Department H. M. Customs to E. H. Bellairs, Wingfield, Christchurch.]

Through the kindness of Mr. Seldon, the Principal of the Statistical Department H. M. Customs, who has sent me each month for a period now of two years returns showing the amount of foreign honey entering the ports of Great Britain (which returns have been published from time to time in the pages of the *British Bee Journal*) we are enabled to compare the various months for each year. Below will be found a tabular statement; and as these figures are collected entirely through the courtesy of the principal, there being no official instruction for including *honey* in the regular Tables of Returns, the gratitude of bee-keepers is due to Mr. Seldon for the trouble he has taken in the matter. From the many letters I have received on the subject, I need hardly express the great interest bee-keepers take in these figures, showing as they do how much we pay the foreigner for honey, although I cannot think they show the capacity of the British public for the consumption of honey even when added to the home production.—E. H. B.

Month.	1883.	1884.
January	£1,612	£2,034
February	2,175	2,234
March	1,535	2,545
April	1,518	4,962
May	1,781	5,245
June	3,534	15,587
July	7,496	10,089
August	6,262	1,019
September	972	6,453
October	725	5,388
November	1,908	4,272
December	1,260	2,729
Total	£33,778	£62,357

A MEDIUM-SIZE SECTION.

While admitting the necessity of a standard frame, I desire to plead for more allowance being made in the selection of the size of sections. I take it that the principal reason for adopting a standard frame was to insure the size of every hive might be the same, and that there should be no uncertainty on this point when ordering one from any maker. This does not apply to sections, and I do not quite like the hard-and-fast rule in this case; in fact, I am an advocate for the 'happy medium' in all things. The two-pound sections are generally admitted to be too large, and I am of opinion that the one pound (which do not contain one pound) are too small. I have used many of all kinds and sizes, but those containing about a pound and a half, or rather less, are the best: they are beautiful when nicely filled, convenient to handle, and are more readily accepted by the bees than the one pound. Nor do I think there need be any difficulty in framing the rules in this respect.

Surely more liberty might be allowed to each individual bee-keeper on this point; and I sincerely hope that, if standard sizes of sections are to be absolutely necessary for exhibition, an intermediate size between the one and two pounds should be admitted.

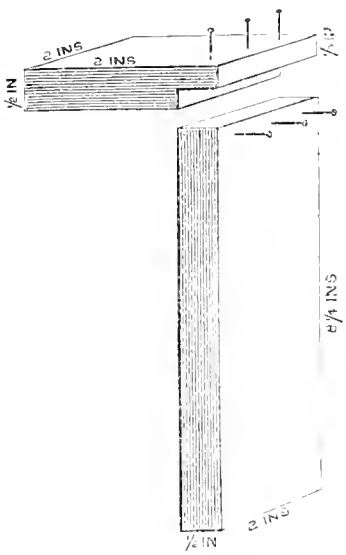
The one-pound sections do not evidently satisfy all, as appears by the correspondence in your last issue; and I should be glad to hear if others do not agree with me as to the necessity of a medium-size section.—W.

STANDARD SECTIONS.

I consider both John Bull and S. Simmins are wrong, and the B. B. K. A. is right upon the standard size for 1-lb. sections, I am satisfied $4 \times 4\frac{1}{2}$ is going out, and $4\frac{1}{4} \times 4\frac{1}{4}$ is growing in favour. I buy a large quantity of 1-lb. sections of honey. In 1883 about 15 per cent were $4 \times 4\frac{1}{2}$; I have bought more this year than last, and from bee-keepers in different parts of the country, yet there has not been among them one section $4 \times 4\frac{1}{2}$: this I think is an evidence that the majority of bee-keepers are using the $4\frac{1}{4} \times 4\frac{1}{4}$ section.

I am surprised that such a practical man as Mr. S. Simmins should say the $4\frac{1}{4} \times 4\frac{1}{4}$ will not hold 1-lb. of honey, and the size is not suitable for standard frames. I have $4\frac{1}{4} \times 4\frac{1}{4}$ sections now in stock weighing 18 oz. perfectly flat. During the summer I have bought some containing 19 oz. of honey without bulging. I desire no

better size for standard frames, a top bar on a wide frame for sections is an abomination when taking out full sections, especially if they are propolised and covered with bees. I always make my ordinary frames with a top bar ½-inch thick, it is much better and firmer to handle than ⅜ when full of honey; for the section frame I also use ½ in. sides and bottom bar ⅜ thick, thus leaving ⅜ space between the bottom bar and the floor-board. As it may be useful to some amateurs who make their own



frames, I enclose a rough sketch giving the dimensions and showing how I put my wide frames together to obtain strength and firmness to bear the weight of the section when filled. I find no sagging with the bottom bar because the bees propolise all together firmly before the sections are filled with honey.

If John Bull will put stouter sides to his crates and use broad shoulder frames, no packing will be necessary. —L. Wren, *Lowestoft*.

SECTIONS.

As a cottager, I must raise my humble protest against the committee of the B. B. K. A. debarring other than $4\frac{1}{4} \times 4\frac{1}{4}$ sections from the Preston or any other shows. Why do they try to incur unnecessary expense upon poor people who have not the means to change from one size to another with all its necessary expenses? I have, for instance, naturally expected that when a standard section was adopted the one fitting best into the standard frame would be selected. Judge my surprise when $4\frac{1}{4} \times 4\frac{1}{4}$—which raises the height $1\frac{1}{2}$ inches above the top of my frames—is preferred to $4\frac{1}{2} \times 4$ inches, which I can nicely work inside. I must, if the resolution stands good, get another supply of sections, crates, and packing crates, or be debarred from competing. What does this mean? It means that I am to be excluded from the shows. It also means that several others whom I know and are using the same class of sections, will be hindered from competing, all on account of a lack of forethought by our advanced lights.

I heartily join John Bull and S. Simmins in asking for reconsideration, and trust the committee will have sufficient benevolence to enable them to comply with such a reasonable request. I do sincerely hope that they will continue to manifest their customary consideration of the humble cottager in all their deliberations.—Station Master.

SIZE OF SECTIONS.

I am glad to see that others besides myself do not approve of the size adopted by the Committee of the B. B. K. A. for sections, and trust that it is not yet too late for them to recall their decision. I cannot agree with your reply to 'R. E. C.' in your paper of the 1st January, to which you refer me, inasmuch as the standard frame is just the size for the 4 in. by $4\frac{1}{2}$ in. sections by making the ends of the frames ¾ in. thick, which is quite sufficient when the bottom bar is nailed to them with $1\frac{1}{4}$ in. or $1\frac{1}{2}$ in. French wire nails, and they may be strengthened with tin at the corners, if considered advisable, but I have used them for two years without any tin, by this means you can have a thin bottom bar, and a top bar, or if you prefer, you can discard the top bar, and make the bottom one thick, so that two sections will be just the height of the frame, and as the 4 in. by $4\frac{1}{2}$ in. sections do not hold a full 1 lb. when separators are used, they may, as Mr. Simmins says, be made a little higher, say $4\frac{5}{8}$ in. by $4\frac{1}{2}$ in. outside, and the bottom or top bar thinned to suit.

Another advantage of having the frames retained the proper size to hold these sections is, they would also be the proper dimensions for the 4 in. by $6\frac{3}{4}$ in. sections to hold $1\frac{1}{2}$lbs., if any one chose to adopt them for their own use; and, indeed, when the standard frame was first adopted, it seemed to me that it was done for the purpose of being able to use the 1 and $1\frac{1}{2}$lb. sections in section frames in the hive, but the B. B. K. A. now discard both and adopt sections which are altogether unsuitable for the frames they adopted, as, to suit them, the ends of the frames should be 1 in. thick, thus having a lot of waste timber in the hive, or else too much space should be left between the side of the hive and the ends of the frames. So far as the shape of the hive and frames are concerned, I believe they would be just as good, if not better, if made to suit the $4\frac{1}{2}$ in. by $4\frac{1}{2}$ in. sections, but since the B. B. K. A. have adopted the present size for frames and hives, let them keep to them, and not be changing to put money into the pockets of those who make or deal in hives. Indeed, if the resolution to adopt the $4\frac{1}{4}$ in. by $4\frac{1}{4}$ in. sections be persisted in, bee-keepers may expect, at no distant date, either to find the size of the hive and frames changed, or else the 4 in. by $4\frac{1}{2}$ in. sections adopted in lieu of the committee's present favourite, and thus, one way or other, money will go into the pockets of dealers in apiarian appliances, and assist bee-keepers in getting disgusted with the expense attendant on becoming an advanced bee-keeper—the opposite of which I trust will be the case—and as the B. B. K. A. and your *Journal* have so much advanced bee-keeping, may they continue to do so.—Boz.

SIZE OF SECTIONS.

I am sorry to differ from Mr. Simmins in his conclusion that because the B. B. K. A. has adopted the $4\frac{1}{4} \times 4\frac{1}{4}$ size section, that British honey will be stamped as being of American production. May I ask what does the British public know of American comb honey in sections? Practically nothing. And as the 'Honey Company' intend dealing in British honey exclusively, that of itself will be a sufficient guarantee as to the source of the produce they offer for sale. And again, no doubt Mr. S. is quite right in his surmises why (for one reason) the Association decided on the $4\frac{1}{4} \times 4\frac{1}{4}$ size, viz., because they have been so generally used; and if so, it was a very valid reason for their decision. Mr. S. must not forget the hundreds of crates that have been sold these last few years, all constructed to take $4\frac{1}{4} \times 4\frac{1}{4}$ sections, and also the numbers of supers for straw skeps, all made to take the same size of section. Has not the slender pocket of the poor cottager to be considered in the matter? Fancy his dismay on receiving his 100

or 200 sections, and then find when he had folded them, fixed the foundation, that he could not get them into his crate, or into his super on his skep; and very likely the only carpentry tools he possesses is a saw and a wood-chopper, and possibly a hammer, or a small hatchet, that does duty for both wood-chopping and nail-driving. Those bee-keepers that have invested in crates to take the $4 \times 4\frac{1}{2}$ size can easily wedge up their $4\frac{1}{4} \times 4\frac{1}{4}$ sections with a strip of board inside their crates, but not so with crates made to take the Standard size. If another and a longer size had been determined on by the B. B. K. A., the crates would have required considerable alteration; and as regards the new size section proposed by Mr. S., one may as well make section-frames to hold $4\frac{1}{4} \times 4\frac{1}{4}$ size sections as $4\frac{1}{8} \times 4\frac{1}{8}$ size sections.—Woodleigh.

[The B. B. K. A. has not yet adopted any size of section, nor can it do so until the Association holds its Annual General Meeting. Nor has the British Honey Company in any way pledged itself to deal exclusively in British Honey,—on the contrary, it has taken the fullest power possible, and has therefore the fullest liberty of action.—Ed.]

DIMENSIONS OF SECTIONS.

Surprise was expressed in your last issue by two correspondents that the B. B. K. A. should have adopted as its 1-lb. standard section the dimensions—$4\frac{1}{4} \times 4\frac{1}{4} \times 2$ in. I am not aware that there has been at present any adoption at all, but I sincerely hope that the Association will put forth, as a standard, this section, because it is the one in general use, and it works extremely well beside the standard frame. I shall be much more surprised than either of these gentlemen if the Association adopts any other size.

Nine-tenths of the 1-lb. sections manufactured in America are of this size, and there is no use in blinking the fact that we are chiefly dependent on our trans-atlantic cousins for our sections. I have carefully examined the English-made sections of most firms, and have seen none equal to the American, either in workmanship or quality.

The fact is our English makers cannot obtain the American white woods in bulk at a price low enough to enable them to compete successfully with American makers. During last season it was almost impossible to obtain sections at all. Indeed, having imported a few thousands, I was so besieged that I could have sold many thousands at nearly double their cost price. How should we have been situated had we been compelled to use a *specialty* as a standard—say $4\frac{1}{2} \times 4 \times 2$—or what one of your correspondent recommends as '$4\frac{1}{2} \times 4\frac{1}{2}$ (bare) with rim $\frac{1}{8}$ thick, &c., &c.;' from which, pray, sir, if you have any power at all in the matter, deliver us. Now in practice sections are never used in ordinary brood frames, otherwise something might be said in favour of the $4\frac{1}{2} \times 4 \times 2$ as best fitting the standard frame. But taking the $4\frac{1}{4}$ in. section as the unit of the standard *section* frame, we can very conveniently fit six sections into one frame by dispensing with a top bar, making the frame-ends $\frac{1}{2}$ in. thick, and allowing space enough beneath the bottom bar to prevent crushing the bees. In this way I have worked $4\frac{1}{4}$-in. sections with the greatest ease and success ever since the establishment of the standard frame in 1882. And, in my humble opinion, if any other size be adopted, the standard section will become a 'hole-and-corner' thing for the benefit of a few English makers only. If we are to have free-trade, let us have it in its entirety.

The allegation that the $4\frac{1}{4}$-in. section does not hold 1 lb. of comb-honey is incorrect. I have a number of these sections now in my possession which weigh fully 1 lb. No doubt they require to be well filled, but therein lies the skill of the bee-keeper. I believe there is very little difference of opinion in regard to the size of the 2-lb. section, viz., $6\frac{1}{4} \times 5\frac{1}{4} \times 2$ in., but there are some who would like to see the $8\frac{1}{2} \times 4\frac{1}{4} \times 2$ in. adopted.

This would be worse even than the proposals of your correspondents respecting the 1-lb. section. The shape is thoroughly disliked by the public, and I have been informed by a large dealer in sections that he cannot dispose of them—that when the ordinary 2-lb. section is selling freely these are left unsold on his counter. The same arguments which militate against the fancy 1-lb. sections tell with a twofold force against this shape and size for a standard 2-lb. section.

For goodness sake, sir, do not let us have any of these fancy dimensions foisted upon us as standards, but let us take the two in common use—almost to the exclusion of all others—and then our standard sections will become as great a success as our standard frame has already become.

In competition for prizes at the shows of the B. B. K. A., make your standard sections a *sine quâ non*, or allow other sizes to compete with them; and so let them win their way as the standard frame has done; but don't impose upon us as a standard the pet sections of any single person or clique.—Anti-Humbug.

SIZE OF SECTIONS.

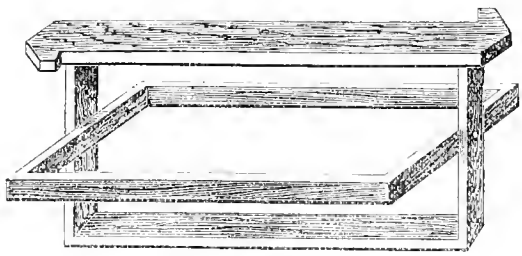
I cannot but feel that the decision of the B. B. K. A., in fixing upon certain sizes of sections for the Preston Show is a step in the right direction; and that, in deciding as it has done, the Committee has been guided by the fact that the sizes adopted are those most generally used. Indeed, it is only necessary to attend the numerous honey exhibitions now held to ascertain that something like three-quarters of the sections exhibited are of the size chosen. Notwithstanding Mr. Simmins's remarks in your last issue, I think it is admitted by bee-keepers generally that a $4\frac{1}{4} \times 4\frac{1}{4}$ in. section can be used with perfect ease in the brood-nests of hives made to take the Standard frame. Added to this, it appears to me that a crate to take sections $4 \times 4\frac{1}{2}$ in. can easily be adapted for $4\frac{1}{4} \times 4\frac{1}{4}$ in. sections, by simply filling up the space no longer required: whilst the separators (if used) can easily be fitted to the new requirements. On the other hand, a $4\frac{1}{4} \times 4\frac{1}{4}$ in. crate cannot be altered with equal ease so as to take $4 \times 4\frac{1}{2}$ in. sections. Here is an additional reason why $4\frac{1}{4} \times 4\frac{1}{4}$ in. sections should be adopted. Most bee-keepers now-a-days seem to agree in discouraging a large use of sections in the body of the hive, but prefer their use in supers. The importance, therefore, of John Bull's remarks is very small, especially as strips of carpet, such as he objects to, are not, in my opinion, altogether a disadvantage in helping to confine the heat and make it rise into the supers. Mr. Simmins' recommendation of a 'British' section seems of little value, when we remember the ease with which our American cousins imitate anything which they may think to their own advantage. Nor do I think such a radical change as he advocates at all desirable.—R. S. T.

REVERSIBLE FRAMES.

American bee-keepers, who have used reversible frames, prove that the system of reversing has many advantages. Up to the present time they have not arrived at any simple, efficient, and inexpensive manner of reversing. One of their prominent writers sets forth the following points as necessary in a complete reversible frame:—1st. The lateral movement must be as perfect as that secured in the use of the ordinary style of suspended frame. 2nd. The construction must be simple. 3rd. To reverse the frame must consume no more time than it takes to simply turn it upside down. 4th. There must be freedom from sharp points, &c. 5th. The reversing de-

vice must be inexpensive and capable of being easily applied to the ordinary styles of hanging frames now in use.

We beg to put before you an invention which we claim 'is the thing required.' The advantages derived from our patent will be best understood by the following copy



from the specification. This invention consists in a revolving inner frame, it being the easiest and most simple mode of reversing the comb in the hive proper. The object of reversing being to compel the bees to store honey in receptacles placed above the brood combs for that purpose, it being unnatural for the bees to store honey in a reversed comb, therefore giving the bee-keeper perfect control over the bees, both in honey-storing and brood-rearing. Also compelling the bees to attach the comb firmly to all the sides of the frame. We claim that our invention can be attached without difficulty to any bar-frame in use—Association or others. The above drawing shows our inner frame in the act of revolving or being reversed. A ¼-inch space is left between the inner frame and the top bar. The adoption of this invention will greatly increase the profits of bee-keeping.—Mason and Buchan, *Dalkeith, N.B., January 15th.*

REVERSIBLE FRAMES.

Reversible frames have not yet received much attention from British bee-keepers, and I hope that during the coming season many trials will be made so that an opinion may be formed as to the practical advantages arising from their adoption.

Those of your readers who peruse the American bee periodicals will have seen that several correspondents have written approvingly respecting them.

I have not had any experience in their working myself, but having occasionally inverted a straw skep and seen the way in which the bees manage under such circumstances, leads me to think that the theory is worth being carried into practice.

When a frame of comb is reversed the honey-cells are at the bottom and the brood is now uppermost. The bees will not suffer their stores to be placed in such an unsafe position and will commence to empty the cells. In doing this, the queen is stimulated in her vocation for which she will have increased space when the cells are cleaned out, and the honey carried up into the supers. Thus the whole space within the frames becomes devoted to brood, and the hive being strong in numbers is ready to take advantage of a favourable opportunity for honey gathering, the produce of which they will deposit in the supers. Another advantage is likely to follow, and that is, that the reversed combs will be built up to the bar and thus a firm slab of comb will be formed.

In order to give this system a fair trial it is necessary to have a simple means of adjustment. There have been several plans advocated, but the one I would bring under the notice of your readers is constructed of flat iron coming half way down the two sides of the frames and working on a pivot so as to be turned either top or bottom. The wood shoulder will, of course, have to be sawn off, but their place will be taken by the flat iron being bent at right angles and so form the shoulder or rest. A simple contrivance of this kind can be easily adjusted to any ordinary frame of Standard size. I have such a one before me, and with your permission will send you an illustration for insertion in a future number of your *Journal* which will better explain than can be done by words.—Alfred Neighbour.

THE HONEY COMPANY.

I see Mr. F. Lyon is not very sanguine of the success of the British Honey Company; he says (page 384) that in nine cases out of ten the object of Companies is to provide comfortable berths for manager and secretary, and fees for directors: let us hope that the proposed Honey Company is the tenth, and that the manager and secretary will prove themselves worthy of the confidence of the Directors and shareholders, and that the Company will be the means of bringing the honey-producer and the honey-consumer within a measurable distance of each other; and if in the past the honey-producer has always found a sale through existing channels, as bee-keeping is advancing with rapid strides it is more than probable that in the near future we shall have a surplus every year, unless the demand very much increases, and that is just where the Honey Company will step in and create a demand by putting it up in an uniform style and being able to keep up a supply all through the year. Whereas in the past the retailer has not been able to get honey only at one season of the year, and the consequence is that a taste for honey as an article of food has to be created, so to speak, every season, and then as the retail trader sells out and is unable to replenish his stock the demand dies out with it.

And another valid reason why we should have a Honey Company is this, that at present the retailer has, as I have said above, to purchase in as large a stock as they can get in a lump, and consequently their money is lying idle until they have realised, besides the inconvenience of having a large stock without adequate room for warehousing the same in a great many instances: but when the new Honey Company has started, the retailer, be he grocer, confectioner, greengrocer, or chemist, will be able to order to suit his wants by the dozen or the gross, either in section or in bottle, and at all seasons of the year; and he will not only have the very great advantage of purchasing as required, but he will be able to suit the tastes of his customers; as all honey must be graded and classed, he will be able to order the white clover, sanfoin, bean, May-blossom, heather, and fruit honey, just as he finds which kind suits his trade best.—Woodleigh.

MÜLLENHOFF'S THEORY OF THE ORIGIN OF BEE-CELLS.

In your issue of Jan. 1 of this year you publish a translation of Müllenhoff's *Theory of the Origin of Bee-cells*, the main purport of which is to show that the hexagonal cellulation of the honey-comb is due, not to any special and inherited idiosyncrasy in the bee for constructing hexagonal cells, but, on the contrary, that the hexagonal cellulation is a necessity dependent on well-known physical and mechanical principles.

Although I am somewhat loth to assume to myself the credit of having pointed out the fact now claimed by Dr. Müllenhoff as altogether new and original on his part, and particularly as I cannot with certainty affirm that no other observer or observers prior to myself had hit upon the same theory, I venture to ask you to allow me to prove, at any rate, that in a paper by me on a widely different kind of organic structure, viz., *On the Development and Structure of the Diatom Valve*,* I

* Published in *Trans. Roy. Microscopical Society* in 1860.

made the following remarks as long ago as the year 1860:—

'Now in the genera of diatoms which exhibit the honey-comb structure—that is, where we find the appearance of a number of little hollow cylinders of considerable relative depth, and open outwards, in so far as the siliceous wall is concerned—the conversion of elementary circular cavities into hexagons is exactly what would result from pressure equally exerted in every direction.' —G. C. Wallich, M.D., *Surgeon-Major, Retired List, H.M.'s Indian Forces, Jan.* 22, 1885.

UNFINISHED SECTIONS.

In your reply to J. Nainby, you advise him to extract his honey and keep the combs carefully till another season. Allow me to add to that advice by telling him to put the crate of sections over a good strong colony of bees, giving them access to them by the feeding-hole, without disturbing the quilt or crown-board, and in twenty-four hours the bees will clear them out perfectly. I have several crates of such that I extracted the honey from, and put them on the hives to be cleared out, and they are simply splendid combs, and about half of them were unsealed when taken off the bees; but I find the honey extracted from them (the unsealed ones) has crystallised without the slightest trace of thin, watery extract on the top, while my neighbour's (cottager's, out of straw skeps) has not crystallised yet, and, in fact, shows no signs of doing so. Can any one suggest a reason? I may add, for the benefit of J. Nainby and others, that I pack my sections containing empty combs in the crates, first laying the dividers over the bottom, and then wrapping each crate separately in paper, and storing in a dry room, and in the spring they will come out as clean and as white as when packed away; but if troubled with the wax-moth, examine each crate a few times during the winter, and, if necessary, fumigate with sulphur, as directed in a previous number of the *Journal*. —Woodleigh.

WASPS INJURIOUS TO BEES.

I have proved by experience that wasps are very injurious to bees, but I find that they generally attack weak stocks. I had one stock spoiled by them this last summer; it was rather a weak one in number of bees, but plenty of honey, and I have watched the wasps begin at the end of a row of stocks, and try hive after hive till they have got a taste of honey, but I have never seen them carry off the dead bees. I tried every means to save my stock, contracting the entrance, putting bottles as traps to catch the wasps, destroying every wasps'-nest I could find or hear of, but still they came. So at last I united the few bees left to next stock, and removed my honey they had left to safe quarters. Some of my neighbours (bee-keepers) lost one, two, or three each from wasps this last season. I always look out for them in spring, and endeavour to destroy every one I can; they get into the straw hackles on the straw-skeps, and are very busy about the gooseberry-trees when they first come into bloom. I intend putting a small premium on each queen caught within a mile of my apiary in the early spring.—Woodleigh.

FRENCH HONEYSUCKLE.

I have received a large number of letters from all parts for the French honeysuckle mentioned by me in your last issue of the *Journal*. A large number of applicants have been supplied, and a number remain on hand. Now, if I had returned their letters unsupplied it would, with time and postage, have been a loss to me of 1½*d*. upon every letter so returned, the same to the senders; and, in addition, they would have been disappointed in not receiving the seed. I could not very well afford to lose so much upon so large a number of letters. If those not supplied will kindly wait until the end of the season they shall be the first to have them when ripe. The seed could then be sown on gentle heat, protected during the winter, and it would come into bloom next year, viz., the same as if sown in April; and should any of my applicants remove from their present addresses, they may inform me by a post-card. I shall be happy to have a card from any with respect to my suggestion. Of course, if any desire to have their stamps returned I should not mind meeting them in half the postage; but as this would cause me considerable loss, I hope they will agree to my suggestion. I can assure them that they shall be honourably used. I have received a number of letters thanking me for the seed, and in some instances presenting me seeds of other bee-flowers. I thank a large number of applicants (both supplied and unsupplied) for their kind expressions towards me.

Culture of the Honeysuckle.—Sow about the end of April, and when large enough plant out, to at least each way, six or nine inches apart; or it may be planted, one or two plants together, in clusters; it will then require no more trouble except cutting down, when dead, at the end of the season.—W. Hollins, *Tillington Avenue, Stafford*.

[We think the above suggestion will meet the views of the applicants whose desires have not been supplied. No time will virtually be lost by the proposed arrangement.]

BEE-KEEPING IN SCOTLAND.

Your correspondent, 'J. A. B.,' at page 27, has failed to produce proof as to the accuracy of his statements—substituting therefor but 'vindictive opinion'—and may be ranked along with that southern 'Hero,' who could literally 'load a ship with fertile (humble) dormant queens,' as what is known in the north as 'windy a wee.' The Scottish 'Heroes' are to be found in their homes amongst their bees; the fledglings, like 'J. A. B.,' protégés of their English brothers, frequent the exhibition bench, and, success being new to them, flap and crow vociferously, which does the old hands' hearts good to see.

Scottish apiarians, without one single dissenting voice, are unanimous in their opinion of the untiring efforts of Mr. Bennett, honorary secretary of the 'Caledonian,' to further the apiarian cause; but, for the benefit of those who know no more of Scottish apiculture than 'J. A. B.' the Major rides his hobbies hard 'for love, and no for siller,' and has declined point blank, over and over again, to receive any testimonial whatever.—J. H., *Glasgow, Jan.* 22.

SIMPLICITY IN BEE-KEEPING.

J. P.'s admirable suggestion in your last issue should be followed up. Surely the Committee of the British Bee-keepers' Association might easily issue a specification, very carefully prepared, of the requirements needed in every satisfactory hive, together with the thickness and quality of the material to be used, and the price for which the hive should be supplied. Similar information could be given about smokers, &c.; and care should be taken to include nothing but *necessaries*, omitting all that may be termed luxuries. No mention of makers would, of course, appear, so that any unfair interference with trade might be avoided. The object would be merely to educate beginners, tell them what essentials they need, and the probable outlay necessary. I can well remember my own difficulty when first I started bee-keeping.—School Master.

DO BEES HEAR?

The remarks at p. 31, of the *B. B. J.* for 15th January, 1885, about bees having a sense of hearing or the contrary, open up a most interesting portion of their natural history. I have studied Sir John Lubbock's delightful book and verified by repeated experiments, which I may detail at another time, his conclusion that bees possess a strong sense of colour and can instantly discriminate one hue from another; but I am not satisfied with his bee-hearing trials. Sir J. Lubbock's tests were insufficient, and I do not recollect his taking notice of what, I think, may yet be found as the solution of this question, viz., that insects hear or have their nerves affected by the waves of sound, in a different way to what we experience, and hence our difficulty in comprehending how bees hear. My own belief is that they do hear. Man and the other mammals, and birds, and reptiles, and fishes, have a great nerve-centre, the brain, to which the thrills of sound and waves of light are conveyed by special nerves, whereas in insects there is no such seat of sensation, hence we find, as regards their sight, these wonderful conglomerations of facets, which, regarded from our stand-point as binoculists, are insoluble puzzles.

How can a bee direct its course through the air with unerring aim to one flower or the flight-hole of her own hive, when through the facets of her compound eyes she sees (so, at least, we think) five thousand images of the one object? And may it not be the same with the bee's organs of hearing, or whatever sense in insects is analogous to them? My own experiments which lead me to think that bees do hear, are,—that when a gun is fired off in proximity to a hive of bees they momentarily hush their murmurs—I mean, when this is tried, that it is done early in the morning or late in the evening when the bees are quiet; and that, if a wooden hive in such a condition is carefully approached, and one gentle tap given with the finger-nail on any part of the timber, instantly the bees will notify by their peculiar 'whiss' that they have had the sound conveyed to them. I had this insect peculiarity most unpleasantly brought under my notice a few years ago in a friend's orchard to which I had gone to destroy a large paper nest belonging to a colony of wasps. The nest hung on the branch of an apple-tree; I did not disturb the insects, and was planning the best way of securing the nest for my museum, when I happened to lay my hand on a branch of the same tree, about five yards distant from the nest, when in a moment the wasps rushed out and stung me rather severely. In this case I could come to no other conclusion than that the sound of my touch was conveyed through the branch,—a fact which is easily tried by placing the ear close to one end of a sound piece of timber—say a felled tree—and getting somebody to tap at the other extremity; when every touch, no matter how slightly given, will be distinctly heard by the listener.

The subject is one well worthy of further elucidation, towards which I offer these ideas by way, I hope, of introduction to a long discussion in your valuable columns.—H. W. Lett, *Ardmore Glebe, Lurgan, Ireland.*

LOSS OF A HIVE OF BEES.

Could any of your readers give a satisfactory explanation of how I came to lose a hive of bees, which occurred under the following circumstances?—Happening to look into the doorway one day, I noticed the entrance was choked with dead bees, so I lifted up the hive, and to my horror found a good three parts of the bees dead or dying on the floor-board soaked with moisture: in fact, they were so wet that when I stirred them up the water ran away from them, although there was no crack in the hive where rain or snow could possibly get in, the other part of the hive being perfectly dry. They were a fairly strong lot, well covering four frames, six being in the hive. The week after Christmas day was very foggy in the early part of the night, with sharp frost towards morning. Could the fog have got into the hive, and the frost brought on rapid condensation, with consequent loss of heat and the lives of our poor pets?—F.

[From your description we imagine that your bees perished from want of ventilation or food—or perhaps both combined—certainly not from fog. It is also possible that suffocation, from dead bees blocking up the entrance, was the cause. These should be cleared away repeatedly during the winter months.]

A GUINEA BAR-FRAME HIVE.

The following is a very brief description of one of the best hives it has yet been my good fortune to meet with. It is made by W. Willcock of Doncaster, and is, indeed, an excellent hive of the best material, sound, and thoroughly seasoned, and is extremely well made and accurately fitted, as well as being substantial and durable. The hive is 24 inches long inside from front to back, takes the Standard frames, has double walls (pine) all round, and stands on four splayed legs of English oak. The legs are continued up the hive walls to a fillet at 2 inches from the top. This fillet runs all round the hive and carries the roof, which is of red wood (deal), and is very carefully made and fitted to exclude the weather. The holes for ventilation are covered with very fine wire gauze. The floor-board is double (1½ inch thick) reversible, and is carried on sloping runners so arranged as to wedge it up at the back, while a loose strip of wood wedges it in front. The entrance is six inches wide, regulated by slides and protected by a porch. The internal fittings are fifteen *true* frames, standard size, a section frame for the back, divider and dummy. The outer walls are about 2 inches higher than the inner, to allow room for supering, if needed, in summer, and for sufficient packing in winter. For its price, this hive will be hard to beat.—Yorkshire.

DESTRUCTION OF BEES BY TITS.

On Wednesday, January 14th, while standing at a window overlooking my hives, I noticed a pair of *great tits* apparently searching for food. In a few minutes one of the birds flew down to the alighting board of an empty nucleus and commenced tapping. No bees appearing, it next flew to the ground, and carried off a bee to the nearest tree. After this had been repeated many times, and two of the *occupied* hives had been tapped at, I drove the birds away and discovered that the ground—which by the way was covered some 6 inches in depth with snow—was literally strewn with bees, some of which were alive. Taking a small bird-trap, I set it carefully, covered with snow, and baited with dead bees on the alighting-board of the nucleus. In less than five minutes one of the tits was caught, and instantly killed, when its stomach—which was the size of a cherry—was found to be full of various portions of bees, the most noticeable being a head complete with proboscides. I then set the trap for the other bird, and in about an hour it was caught likewise. The stomach contained similar substances. A very small portion only of each bee was eaten, the head appearing to be the chief delicacy; the other substances found in the stomach consisted of portions of skin, part of the inside of the thorax, and a few of the front legs. The bees, deprived of the above parts, were scattered in numbers on the ground. I may also mention that I carefully timed these tits as they were eating, and they took in every case from three quarters of a minute to a minute to devour each bee.

It will be apparent what a great deal of harm may be

done by these birds at this season of the year, not only by the actual destruction of individual bees, but chiefly by the constant tapping which keeps the whole colony in a state of excitement. The above birds, by the number of bees lying on the snow, must have been at work at the hive doors some hours before they attracted notice.—A. I. W., *Ingham Viccarage, near Lincoln.*

Echoes from the Hives.

Honey Cottage, Weston, Leamington, Jan. 22nd.—Bees on the whole are wintering fairly, though I notice two or three stocks (that had stores of honey of their own gathering) have dysentery very bad. They have plenty of honey, and had no syrup-feeding in autumn.—JOHN WALTON.

Hunts, Somersham, January 23.—Matter for echoes has been scarce lately, as both bees, and to a certain extent bee-keepers, have been at rest. We have for the past two months, since winter was ushered in by a rather severe snow-storm, seen very little of our bees, as they have only been able to take, during the whole time, two or three good cleansing flights. On Monday I examined two lots of condemned bees which I got late last autumn, after all my stocks were securely packed for the winter; and having no spare combs, and season being too far advanced for syrup feeding, I tried the experiment of wintering them in two separate hives on empty combs with cakes of candy above the combs. The last time I saw them alive was early in December, immediately after the first cold spell of a few days duration. They had then consumed nearly half of the cake. I had not examined them from that date to last Monday, when I found both lots dead and very little more candy consumed. I had no faith in candy alone, but being assured by Mr. Hewitt (Vol. xi. p. 119) and elsewhere, that bees will winter on candy alone and come out well in the spring, I thought I would make the experiment with these bees. I send this report because I have not noticed that your request for reports on the trials of this method of winter feeding has been complied with.—C. N. WHITE, *Hon. Sec., Hunts, B. K. A.*

NOTICES TO CORRESPONDENTS & INQUIRERS.

W.—*Plants for Hedges.*—Hawthown is admirably adapted for hedges: if required more as a bee-flower than as a formal hedge, the young plants should not be subject to the usual clipping and pruning, but allowed to grow without any restriction. A very useful hedge may be had from blackthorn (*Prunus spinosa*), the flowers of which come very early in the spring; a few Standard Hawthorns may be planted at intervals of, say, twenty feet. If the hedge is not intended as a fence against cattle, &c., Snowberry and Broom may be planted. Of course these cannot be relied upon to turn stock, but a hedge of Broom in full flower in May is, indeed, a very pleasing sight. The Myrobella Plum (*Prunus myrobelana*) is another excellent shrub for hedges.

T. E. ROUTH.—*Dead Bees.*—We fear that your bees do not get sufficient air. Give an entrance of nine inches by $\frac{3}{8}$ in. the lower side of the dummy, and one of six inches, at least in the outer wall of the hive, and clear away all dead bees and refuse from both entrances. During a hard, long-continued frost many bees outside the cluster usually perish.

T. R.—*Moving a Stock.*—Under the circumstances it would be best to move your hive at once—say to some cottager's garden—a couple of miles away, and when your own removal takes place, to again transfer them to your new abode. Failing this, you must run the risk of the loss of a few bees by moving them at the time of quitting your present abode. Do not transfer to another hive until after your removal. For stimulating in March give from half-a-gill to a gill according to strength of colony. The wire-gauze system would not answer, as you would lose a large number of bees from the excitement caused by confinement. If fine warm weather prevailed you would probably lose the colony.

C. H.—*Dead Bees.*—The brown granular substance of which you speak is simply refuse wax and pollen caused by the unsealing of the honey-cells by the bees to obtain their food. We do not know to what hive you refer when speaking of 'Neighbour's patent hive,' but in any case give a dry, clean floor-board, and disturb the bees as little as possible until later in the season. If they are in a frame-hive, and you think they require food, raise the carpet covering—*i.e.*, the quilt—and place candy over the cluster of bees. When the cold weather departs, and the bees begin to fly, you will probably discover that they are not suffering from dysentery. A considerable number of bees die in the winter from old age and other causes independently of disease.

W.—*Combs affected with Foul Brood.*—We certainly should not destroy the combs, but would fumigate them with salicylic acid, and afterwards spray them thoroughly with phenol, or a strong solution of carbolic acid, using for the latter purpose a 'Cooper's Patent Protector,' which may be procured at any ironmonger's for a couple of shillings, and which ejects the spray with great force.

BUSY B., *Coleraine.*—1. *Boiling Sugar.*—You will find on comparison that the crystals of loaf-sugar are of considerable size and hard, while those of 'Candy,' as prepared for bee-feeding, are small and soft. The water is not all boiled out, the syrup when ready for stirring to convert it into candy being not very much stiffer in consistency than honey, and the finished candy should not be much harder than the hardest setting honey in cold weather becomes. 2. *Fixing Foundation.*—Cut the sheets half an inch shorter than the length of the frames between the side bars, and fix it so that a quarter inch space is left on each side. If made to fit, it will 'buckle' into waves when the bees work it.

L. GILBERT, NOVICE, AND F. G. PREECE.—*Moving Bees Short Distances.*—The time and method of moving bees depend greatly upon whether they are to be moved from one part to another of the same premises, or to other premises, with perhaps a highway or other property intervening. In either case the best way is by the swarming process, as frequently described in our columns as follows:—Make a swarm and place it upon the old stand, remove the stock to the new position. At night remove the swarm to the new position, and, if increase is not desired, place it on or near the stock, and in a few days' time reunite. But, as this can only be done in swarming weather, the next best plan is to move the hives a yard a-day until in the new position. But this is a tedious plan, especially at a season when the bees are not flying much, as only the days when they are abroad are to be reckoned. This plan is obviously inapplicable where a highway, river, or intervening property, has to be crossed. The three correspondents above named desire advice as to moving bees 250 yards, a quarter of a mile, and 100 yards respectively, and whether to move them now or in the spring. If the second plan can be adopted we should say the spring, but if circumstances prevent its adoption the bees must be taken at least a mile away, and kept there until several opportunities for flight have occurred before being brought back to their old locality. If none of the above plans are

suitable, then they must be moved direct to their new positions, and in this case now will be a better time than later on, as shorter flights are now taken, and the danger of returning to the old spot is lessened, although it, of course, exists. Great care should be taken to make exit difficult by leaving a board against the hive front to call the attention of the bees and cause them to mark the position.

F. G. Preece.—*Feeding up for Autumn.*—Yes; the plan of letting one or more strong stocks do all the work of storage for the whole apiary has many advantages. Not the least being that the danger of robbing when weak stocks are being fed is avoided. The same plan is specially suitable to provisioning condemned bees, and was recommended in our columns last July and August.

E. Williams, *Hawarden.—Impending Famine.*—The bees which you sent reached us in a flattened condition, and quite indistinguishable. In the absence of any particulars, we should feel inclined to pay special attention to the hive out of which they were turned. It is not very unusual to find brood existing at this season, but the rejection thereof seems to indicate impending famine.

W. H. D.—1. *Foul Brood.*—Your treatment has been correct so far, and we trust that your stock is cured or in a fair way to become healthy. By all means complete the cure before transferring to a new hive. You will find among replies to other correspondents some remarks as to moving bees. 2. *Cork dust.*—The sample which you send is burnt cork and is not right. What you should use is ground cork, which is to be had for the asking, or for a few pence, of grocers and fruiterers who sell Almeria grapes, which are imported in barrels with the ground cork packed among them to prevent bruising. It is as well to leave it in permanently if your hives are exposed to the sun, as it tends to keep the heat out in summer and in in winter. 3. *Sections.*—The proposed standard having been well considered by the Committee, you will do well to adhere to it. You would not be able to get a higher price for larger than for the standard size, if you wished to sell. 4. *Distance from centre to centre of Combs.*—1⅜ is the exact average width determined from several measurements, but 1½ inches will do, although the bees would prefer the correct distance and would build to it if left to themselves.

G.—1. *Combination Hive. Back supering.*—Where sections are worked in the body of the hive, the wide—*i.e.* the section—frames, with sections and bees, when well commenced, should be transferred, as supers, above the frames (their place below being filled with others), where the bees will seal, and finish the sections, more quickly than below. All wide frames, therefore, should be so made as to form complete supers when placed above the bees. They are often made without top bars, and hinged at the bottom, to facilitate removal of sections. We do not know when Mr. Abbott's promised pamphlet will appear. 2. *Piling Supers.*—No piling of sections,—or, as it is usually termed, 'tiering up,'—will be required if you work on the system above recommended. If, however, you use the ordinary section-rack, and practise 'tiering up,' the second rack should be placed under the first, but not until the latter is about half filled, when it should be raised entire—with bees and sections—and the empty one placed under it. 3. *Feeding from Combs behind Division Board.*—We advise you to give the combs of sealed store *inside* the division-board, and close to the brood-nest, unsealing a few cells as occasion requires—a far better plan than placing the food on the outside of the division-board. If you prefer the latter plan we should advise the use of two division-boards as you suggest. 4. *Crates.*—If you practise 'tiering up' you must use the ordinary section-rack. Otherwise we prefer the 'divisional-rack.' See 'Racks and Crates' under 'Useful Hints.'

R. S. Lloyd.—*Observatory Hives.*—Observatory hives are the worst things that could possibly be conceived for purposes of profit or breeding. In the height of summer bees will manage to exist in them, and they are invaluable for natural history purposes, or as an interesting ornament for a sitting-room, and we may add for show purposes; but we never see them stocked with bees without pitying the poor wretched insects that have been induced at the will of their masters to inhabit them. Bees will inhabit the kind you name if you place them in it, and breed in it to a greater or less degree, but we should certainly not recommend it as a nucleus for queen-raising, although many queens have been hatched in such for the purpose of observing the process.

W. Franks.—Having carefully considered your statement, we feel we cannot undertake to give insertion to it in its present form. If the facts are correct as stated, we advise you to use your individual efforts to effect some improvement. A communication to the Sec. of the B. B. K. A. would, in all probability, be the means of having the attention of the executive of the Association in question called to their present condition.

G. Stocks and Enquirer from Cornwall.—*Sugars for Bee-feeding.*—The samples of American granulated sugar forwarded are very similar in appearance and quality to Duncan's Pearl Sugar which we recommended in our last issue. We prefer the latter, as, having the manufacturer's name on the seven-pound bags, we thereby have some guarantee of its purity. It can be procured from Neighbour's, Regent Street.

M. Pumphrey. *Canadian Honey.*—The sample of honey forwarded is pleasant to the eye and not ungrateful to the taste. It has a distinct flavour of peppermint. If this taste were not in the original sample, it might be due to the bees having, since it was sent, found other pasturage, which has communicated the peculiar flavour. If this reply is not sufficient or satisfactory, we would suggest that the two kinds of honey should be submitted to an analyst.

J. E. M., *Ipswich.—Prevention of Swarming, &c.*—We quite understand your anxiety to get some honey this year, but your reason for not doing so last is not so evident. All the advice given you may be good under certain circumstances. The stock, when you purchased it, might have been in a very weak, heartless state, and consequently under the treatment you gave it, took all last year to regain its lost strength, as you say it is now strong. Or, again, it might have had a worthless queen, and when other hives were bringing in profit she was being replaced by the bees, and by the time your stock was strong the honey glut was passed. If this was so, you now stand a very good chance for profit should the coming season prove a good one. Watch the advice we give in 'Useful Hints,' and stimulate them by-and-by as we advise; and if supers are placed on at the proper time the probability is they will not swarm, but take to the super; but as to saying 'how often they ought to be examined to prevent them from swarming all through the year,' Shades of Woodbury, help us! that is beyond us quite.

Mr. Cheshire would be obliged by any correspondent forwarding him dysenteric bees to assist his microscopic studies.

THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

[No. 164. VOL. XIII.] FEBRUARY 15, 1885. [PUBLISHED FORTNIGHTLY.]

BRITISH BEE-KEEPERS' ASSOCIATION.

QUARTERLY CONVERSAZIONE.

On Wednesday, the 28th January, at 6 p.m., the First Quarterly Conversazione of the above Association in the present year was held in the Board Room of the Royal Society for the Prevention of Cruelty to Animals, 105 Jermyn Street.

Among the company assembled to hear a paper to be read by the Rev. J. Lingen-Seager entitled 'On Honey Judging at Shows,' were the following gentlemen:—The Hon. and Rev. Henry Bligh, the Rev. H. R. Peel, Captain Campbell, Mr. J. Garratt, Mr. F. Lyon, Mr. J. P. Sambels, Mr. G. D. Haviland, the Rev. Mr. Clay, Mr. G. Drinkwater, Mr. S. J. Baldwin, Mr. T. B. Blow, Mr. W. H. Dunman, Mr. W. O'B. Glennie, Mr. J. M. Hooker, the Rev. W. E. Burkitt, Mr. G. Henderson, the Rev. Mr. Wilkinson, Mr. H. G. Morris, Mr. W. Hollands, Mr. W. T. Seabrook, Mr. Hinton, Mr. T. Simpson, Mr. Zehetmayr, &c. The Hon. Mrs. Bligh, Miss Gayton, and other ladies, were also present during the proceedings.

The Rev. Mr. Clay (Bucks County Representative) having taken the chair called upon Mr. Seager to read his paper.

HONEY JUDGING.

I conceive that the subject that I have to bring before you this afternoon is one of much greater importance to bee-keepers than is generally supposed.

During the last few years, since I took up bee-keeping, and especially since I have acted as hon. sec. of the Hertfordshire Association, I have had communications with bee-keepers in almost every county in England, in Scotland, Ireland, and several of the colonies. One of the questions which has been most frequently put to me, both verbally and in writing, has been, 'What am I to aim at?' 'What do the judges want?' and I confess I have been obliged to answer, 'I do not know. The opinions and requirements of judges differ so much, and no fixed rules have been laid down for their guidance.' Thus it was that I ventured to write last summer to the Committee of the British Bee-keepers' Association on the subject.

For some fifteen years I have been constantly 'mixed up' with judging of one kind and another. The first time I was asked to act in the capacity of judge was at a dog-show; I accepted the office eagerly, fully believing myself competent to decide upon half-a-dozen breeds: at the end of the day I came to the conclusion that I knew nothing at all about it, and I do not think the other judges knew much more than I did. I have examined some thousands of boys for one purpose or another; have judged flowers, and butter, and a variety of things, but each time I judge at a show or sit down to look over papers, I am more and more convinced how much more difficult the task is than is generally supposed by the many who are so ready to undertake it.

I remember hearing a story of an examination for a valuable scholarship which was conducted by two gentlemen, both of them apparently fully qualified for the work. When the papers had all been looked over, the two gentlemen met to decide the fate of the competitors. One of the examiners took up his stand on the hearth-rug with his hands in his pockets, and began, 'Well, *my impressions* are, &c., &c.' The other, a Cambridge man, of precise and mathematical mind, looked up in dismay; he sat at the table with a large sheet spread out before him, covered with figures—the marks he had given for each subject and each division of subject. The 'figures' and the 'impressions' could not be made to agree, no decision was arrived at, and a fresh examination was held by other examiners.

Now much of the honey-judging I have come across has been of the 'impressions' type, and the decisions, when challenged, very hard to defend. I remember one particular case of this kind. The judge, coming round the show an hour or two after he had made his awards, indignantly exclaimed that the first prize had not been given to the sections to which he had awarded it, and insisted on the card being changed. When the secretary came on the spot he quietly explained that permission had been given to the exhibitors to re-arrange their exhibits after the judging was over, and thus a different *impression* had been made by a different arrangement.

I think all are agreed that this '*impression*' style of judging is unsatisfactory, and that what is wanted is a code of rules for the guidance of judges: but how far it will be advisable to lay down hard-and-fast lines in the form of a *scale of marks* is a matter for your discussion.

I take it that my business is not so much to put forward my own views as to provide material for discussion; with this object, therefore, I shall now attempt to place before you those points which experience has shown to need some definite ruling.

The first point which I bring forward is 'weight'—weight of sections, that is. It is well known that a 1-lb. or 2-lb. section may be pretty, even, &c., &c., but yet fall very much below the nominal weight. Is it advisable that such sections should compete on equal terms with those that weigh what they pretend to? If this is satisfactory to exhibitors, is it to those who buy, and who, when they get home, find they have got short weight? It is all very well for us to say, this is only *a nominal or approximate weight*, and that we sell by the section, not by the pound: but others have found, as well as I have, that an unsatisfactory impression is often created by this; indeed, for the last two years I know many producers have found it necessary to sell sections by weight, because they have received so many complaints from purchasers. For this there are open to us two remedies—first, to do away with the names '1 lb.' and '2 lb.,' and simply to call the sections large size and small size or, secondly, to fix, once for all, a standard of weight

and let it be understood that all sections which are not up to the standard shall be disqualified.

It occurred to me once last year to have before me an exhibit in which the sections were, in every way except weight, so far superior to all others that I could not see my way to withholding the first prize from them; I determined to weigh them, and was quite astonished when I found that the twelve 1-lb. sections weighed as nearly as possible 1 lb. less than the next twelve that I put in the scales. Now had there been a fixed minimum weight I should have been relieved of an unpleasant responsibility and not exposed to much invidious criticism which resulted upon my awarding the first prize to what appeared to be a very inferior lot; a similar difficulty must have occurred to many others.

Closely allied to this point comes my next, the filling up of sections.

Is a good section one that is filled closely up to the wood all round, without running over, or one round which passage-holes are left? I once heard two judges—as far as I know equally qualified to form an opinion—discuss this point, standing for half-an-hour before the show-bench and unable to come to terms; one maintaining that the comb ought so to be joined to the wood that it could be cut away without bleeding the honey, the other asserting that a fuller section, if evenly worked, ought to have the preference.

This is not a question to be settled off-hand: but it is of the utmost importance that a well-matured decision should be arrived at in the matter, and such a definition given as shall leave no opening for dispute.

I will put a case before you which actually came under my own knowledge. In 1883 a judge, deputed by the British, went to a local show, gave his awards, and explained his principles of judging to some of the chief exhibitors: 'You ought to be able to cut out the piece of comb without spilling any honey.' Next year another representative of the B. B. K. A. went to judge at the same town; the exhibitors, who had carefully selected their sections according to the rule given them the previous year, were wofully disappointed—and, I think, justly so—when they found their exhibits all passed over; and one of them subsequently said to me: 'If I had known what the judge wanted I could have shown a much better lot than that which took the prize.' This sort of thing does a great deal of harm.

Now as to sealing—many, perhaps most, judges will say there can be only one opinion on this point: the sealing must be *thin, even, and transparent*. But there is another side to this: thin sealing is good as regards appearance and for eating, but what about packing and travelling?—a matter of no small importance: and what about keeping? Not long ago I saw some sections, which had won the first prize at a good county show, oozing all over, by no means inviting, certainly not fit for the market.

I offer no opinion in this matter; I only ask that the question may not be settled off-hand in a hurry.

Next as to colour—it is very easy to sit in one's chair and say: 'Oh! honeycomb should be "creamy-white," or "pale straw," or "light amber," except in the case of heather:' but do the eyes of all of us see colour alike? and have you not come upon beautiful sections of honey that certainly could not be described by any of these terms? The more I see of honey gathered in different districts, and from different flowers and trees, the more I distrust my judgment as far as colour is concerned. And if colour presents a difficulty, what shall we say about flavour?

I confess I feel a kind of despair when I see a long row of samples before me, and know that when I have tasted half-a-dozen of them my palate will have lost its power of distinguishing, and that neither dry biscuit nor cigarette will restore it; and even if I could honestly decide which I thought best, how many judges—not to say purchasers—would disagree with me?

Someone may say I am only raising difficulties, and I had much better have left such points alone and let each judge decide for himself. I do not believe in leaving such difficulties alone; we had much better face them. I may just relate the following fact, to which I was a witness.

Two well-known judges were tasting honey. A thought sample *x* quite perfect, and *y* very inferior: B thought *y* excellent, and *x* indifferent; they consented to be blindfolded and taste again, and each of them failing, without the help of his eyes, to maintain his opinion, adopted the choice of the other. After that what can we say about judging by taste?

Doubtless there are some points, even in matter of taste, about which judges will not differ: these relate more especially to run or extracted honey, but may as well be noted while we are on the subject. All will be agreed that no one is qualified to act as judge who cannot at once detect honey in a state of fermentation, or honey made from the secretion of the aphis: but as one lady prefers eau-de-Cologne, another lavender water, and a third Jockey Club, and yet the sense of smell in all may be equally refined, so one palate may prefer the flavour given by one flower and another quite a different one, while they may both be as offensive to a third as violets were to Leach's huntsman. We know how widely tastes differ in the matter of olives and caviare.

Ought granulated honey in the comb to be admitted in competition? This is a question that has frequently been raised, and, as far as I know, never satisfactorily answered. On the one hand it must be remembered that granulation is, to a great extent, an evidence of quality and an accident of temperature: in answer to this it may be said that the exhibitor should keep his honey at a proper temperature, but it yet remains to be decided what the proper temperature is. Then again, judges may urge, It is next to impossible to decide between granulated and liquid honey, especially when run or extracted. It has been suggested that a separate class should be made for liquid and granulated, but at small shows this would be impossible: and it may be a question whether it would, in any case, be advisable.

Several chemists and grocers have told me that many of their customers prefer honey in the more solid form, especially when it is very white; and we cannot afford to ignore the market.

There are a few points on which probably most experts will find common ground, but which do not the less need to be formulated for the sake of exhibitors. There can be, for instance, I imagine, no difference of opinion as to the demand that all cells shall be filled and sealed in each section or bar super: all recognise the importance of a level surface, betraying no sign of an ill-fitting separator: also of room being left for a glass to be put on without touching the comb; and that all sections in one exhibit should be uniform in appearance and alike in flavour. But are all equally agreed about the dressing-up of sections?

Many of those who sell large quantities of section-honey plead that the pretty coloured paper and lace petticoat are a great attraction: but, like charity, they cover a multitude of sins. Others say: 'Do what you like with your honey *for sale*, but do not let us have any *exhibits* dressed up at all.' Others, again, 'A narrow paper-edging is good and keeps out the dust:' some say, 'Let the paper be white;' others, 'Why not have any colour?'

This question is an important one—more important than appears on the *surface*—and a definite law should be laid down; I do not mean for sale, but for exhibition purposes. What I have said about colour and flavour in sections applies equally to run or extracted honey, 'only more so.'

As to consistency—I have heard more rubbish talked about this than any other point. Cannot Mr. Hehner, our analyst, give us some practical help on this head?—

some definite test by which a decision may be registered with something like confidence? The dipping a spoon in and watching it run or drop off is very unsatisfactory. I have known honey to be thickened in such a way as to escape the detection of any ordinary judge, and yet remain clear and of good flavour.

The objectionable appearance of much of the extracted honey that is shown is, I believe, chiefly owing to ignorance; and I have generally found that the second-year people manage to improve in this point, and get their honey in good form; but a few simple rules would be useful for judges as well as exhibitors.

In conclusion, I trust that I shall not be thought to be travelling too far off the track if I venture a suggestion, that when judges are sent down from head-quarters to local shows, a special request should be made that one or two gentlemen of the county association in question should accompany the judge. This would serve a double purpose, first, of educating a new generation of judges; secondly, of disseminating through the county the views and principles of judging advocated by the parent society; also, that where it is desired, the judge should explain generally the causes of success and failure. I believe that no competent person would object to giving his reasons for and justifying his awards; and such a course would do much towards improving the quality of our shows and answering the question, 'What are we to aim at?'

Discussion.

Mr. Garratt thought he might be considered presumptuous in rising first. However, as there appeared to be some diffidence amongst the members in opening the discussion he would venture to say a few words, trusting they would be the means of drawing out thoughts and suggestions from those judges he saw present, who were far more competent to speak on the important subject before the meeting than himself. He thought there was a somewhat caustic vein running through the paper. The question was a very difficult one, and no blame should be cast on the judges, who had no rules to guide them in their decisions, and were consequently left to exercise their own powers of discrimination in awarding prizes. In the absence of any official guide, or plan, or even suggestions, what could they do but adopt their own methods? and as a matter of course these awards were affected to a large extent by the views or taste of any particular judge. He believed, however, they were in a state of education on this subject, and were gaining knowledge year by year. Possibly it would be practicable some day to lay down certain rules on which judges could base their decisions, but there never could be anything approaching a hard-and-fast line drawn. In regard to the exhibitions of animals (although admitting the two cases were not quite parallel) certain rules had been established which came to be recognised, and upon this the awards were given. He would have liked to hear some practical suggestions from Mr. Seager as well as criticisms. There was no doubt that the honey at given exhibitions must be judged relatively according to the produce of the exhibition. It would not be right to insist on a certain colour as being the correct colour, because that colour might be absent entirely from some exhibitions. He thought the fact that exhibitors occasionally cavilled at the decisions of judges was not of much import. There always would be cavillers, and they must be content until they could fight their way to the front. He considered the paper a most interesting one, and that the difficulties had been well pointed out. It was not easy to make any practical suggestions, but he submitted that it might be possible to determine on certain points in regard to judging honey, and fix a maximum number of marks for each point.

Captain Campbell said that as regarded sectional supers, it must be remembered that if they were under weight it was not the poor unfortunate bee-keeper but the bees who were to blame. The regulation size of frames was $4\frac{1}{4}$ inches by 2 inches, and if these were filled properly they ought to make one-pound sections, but if the bees did not fill up the frame obviously the sections would not weigh one pound. He thought the judges should not be expected to give the reasons upon which their decisions were pointed. It had been well laid down as a maxim in law, that when a judge gave his decision only he was sure to be correct, but when he gave his reasons he was sure to be wrong. It had been remarked that some exhibitors had cavilled at judges' decisions, but let them imagine what food for grumbling would be afforded if reasons were given. Besides, they would have a difficulty in finding judges if such gentlemen were called on to give reasons for their awards.

Mr. Hinton entirely agreed with Mr. Garratt that the paper was a most interesting one, but was disappointing in the matter of suggestions. He could not support Captain Campbell in ascribing the fault to the bees when sections were not sufficiently full. If this sort of excuse were to be taken for the shortcomings of the honey, one might as well blame the flowers, and so on *ad infinitum*. With regard to reasons no hard-and-fast line could be drawn, although he thought that in nine cases out of ten it was possible for judges to state them. Nothing satisfied disappointed exhibitors so much as knowing the reason why they were disqualified.

Mr. Lyon thought that it would be universally admitted that the object of exhibiting honey at shows was the ultimate sale of it. Judges should therefore take into consideration the thick or thin sealing of sections. If these were thin sealed they were rendered bad for keeping and bad for carriage, because very little movement would cause the honey to 'weep,' when it became unsaleable. Besides this it was likely to damage goods in a grocer's shop. He had heard of grocers declining altogether to receive honey, because they had had other goods spoilt by badly sealed sections. It was important that every cell containing honey should be sealed over to avoid 'weeping.' Granulated honey in sections should be disqualified. As regarded flavour he thought no rule could be laid down, because this depended on the season of year, the flowers, and the district. As regarded colour, he had seen honey from Lincolnshire almost as white as lard, but this was extremely rare, and he was of opinion that amber or straw-coloured honey should take first rank. Very few sections of the regulation measurement fairly filled and sealed sealed quite a pound, but he thought they should not be rejected when just under that weight.

Mr. J. P. Samblès believed that very few sections reached one pound, and therefore the judges should not be too exacting on that head. It was desirable that there should be as few pop-holes as possible. He quite agreed with Mr. Lyon in his objections to lightly sealed sections. They certainly did look better, but he had heard complaints respecting them on the part of tradesmen. They became unsaleable, and were consequently a dead loss to the owner. Up to that time it had been a moot point as to the way sections were put up for exhibition. No doubt they obtained an easier sale when prepared attractively at the shows, which were really a kind of honey fair. Besides, if stout paper were used outside, dust, flies, &c., could be the better excluded.

Mr. Haviland exhibited a hydrometer that he had had made for the purpose of ascertaining the density of honey. By this instrument one could find the proportion of sugar in the honey. However, he believed the public were more concerned about the sale of honey than the specific gravity of it—they were governed more by its taste and appearance than the amount of sugar it contained. He thought it would be a good idea to separate different examples of honey according to the flowers from which they were produced and label them accordingly. Some

persons liked the honey produced from one flower, and some that from another.

Mr. Drinkwater trusted that this discussion would take some practical form. If the Committee of the Parent Association would only draw up a set of rules for the guidance of judges throughout England, bee-keepers would be very much indebted to them, as they already were to Mr. Seager. He was prepared to move a resolution to that effect.

Mr. Baldwin quite agreed that it would be a great advantage to judges and exhibitors if a code of rules could be established in reference to honey-judging, but he foresaw several difficulties in relation therewith. If granulated honey were to be disqualified, certain parts of the country would be excluded from competing at shows. In Lincolnshire section-honey became set in a very few hours after being removed from the hive. The same might be said of the honey produced from turnip-seed in Romney Marsh. He could not agree with Captain Campbell in saying that the weight of sections depended on the bees rather than the bee-keeper. The bee-keeper need not have the pop-holes, in which cases the bees would fill up every corner splendidly. He presumed the proposed rules would not disqualify sections if they were not quite two inches wide, provided they measured $4\frac{1}{4}$ by $4\frac{1}{4}$ ins. Very few sections measured 2 ins. wide. With regard to flavour, that depended on the flowers and the locality. It was difficult to arrange a code of rules, because so much scope must be allowed for the discretion of judges, one class of exhibits being quite different to another. He certainly thought preference should be given to those who displayed taste in their exhibits. There was no doubt a showy appearance was an inducement to purchasers. In his opinion sections reaching fifteen ounces in weight should not be disqualified.

The Rev. H. R. Peel wished to remove an impression that certain dimensions had been fixed officially as the standard size of sections. That was not so. That matter had been considered by a sub-committee, and would be brought before the General Meeting of members for definite settlement on the 11th February.

Mr. Blow thought some code of rules might be adopted with benefit to the produce of section-honey. He believed that a weight of one pound could easily be got in $4\frac{1}{4}$ sections. He agreed with Mr. Lyon in his remarks respecting heavy sealing, which was most desirable from a commercial point of view. He had seen cases in which honey was unsaleable after a long journey. Sections should be dressed and made to look as attractive as possible. There was no fear of judges being misled thereby. He quite indorsed Mr. Baldwin's views on the subject of granulated honey. In some districts it was practically impossible to prevent comb-honey from granulating. In the case of Lincolnshire honey the granulation was not so objectionable as that of ordinary honey. The former had an even, lard-like appearance, while the latter was studded with lumps.

Mr. Garratt begged to express his entire disapproval of the system of dressing honey for shows.

Mr. Sambels explained that he did not wish to convey that pop-holes were not the fault of the producer, but he desired to say that judges should give the preference to sections with the fewest number of pop-holes.

Mr. Lyon suggested that a copy of the proposed rules (if the Committee consented to undertake the task of preparing them) should be sent to each member of the Association with a request that he would read them, make any suggestions, and return them to the Committee before their final adoption.

Captain Campbell said that although he thought it unreasonable to ask judges to give the reasons for their awards, they might be invited to make any remarks they chose as supplementary to such decisions. If they would consent to give reasons when rejecting exhibits, such information would be most valuable to producers, who might next time avoid the rocks and shoals of their early experiences.

Mr. Dunman strongly disapproved of dressing honey for shows.

Mr. Hinton considered that unadorned honey was adorned the most. He also thought that granulated honey should not be excluded from the shows.

The Rev. H. R. Peel said a special committee had been appointed to consider the subject of that day's discussion, and when they had decided on a set of rules these would be published in the columns of the *Bee Journal*, so that they might be further discussed by the public, who would be invited to make any suggestions they pleased before such rules were finally passed.

Mr. Drinkwater was much gratified to hear that the Committee had already taken the subject into consideration with a view to a practical result.

The Rev. J. Lingen Seager, in reply, said he should still adhere to his resolve not to express any opinion on the points he had brought forward. He merely intended to point out as forcibly as he could the unsatisfactory way in which honey-judging had been carried on hitherto, which fact he thought all judges must acknowledge. There was no doubt they would welcome any assistance in the shape of rules to guide them. Of course he was aware that only general principles could be laid down, a large margin being left for the exercise of the judges' discretion. He thought it would be possible perhaps to arrange a system involving a scale of marks. Whenever he had acted as a judge he had adopted a plan of this kind. On those occasions he invariably went over his work two or three times, each time preparing a separate paper of marks. These papers were not compared till the conclusion of the inspection. He had, however, generally found that his first impressions were confirmed by this method.

Mr. Glennie, in moving a vote of thanks to the lecturer, said the subject of his paper had exercised the minds of the Committee of the B. B. K. A. ever since they had held their first Show. He was a member of the Committee as long ago as that Show held at the Crystal Palace, when he remembered dissatisfaction was expressed by some exhibitors at the awards of the judges. He hoped the discussion of that night would help them in smoothing over the difficulties they had always foreseen in dealing with this matter. He was sure they were all much indebted to Mr. Seager for his valuable paper.

Mr. Dunman having seconded the resolution, the Rev. Mr. Seager briefly returned thanks.

The Rev. H. R. Peel moved, and Captain Campbell seconded, a vote of thanks to the Chairman, who expressed his acknowledgment of the same, and the proceedings terminated.

Special Meeting.

A special meeting of the Committee of the B. B. K. A. was held at 105 Jermyn Street on January 28th, for the purpose of conferring with a deputation from the Lancashire and Cheshire Association to consider proposals whereby the Lancashire and Cheshire Association might renew its affiliation with the Central Association. There were present the Rev. H. R. Peel in the Chair, the Hon. and Rev. H. Bligh, the Rev. F. G. Jenyns, the Rev. F. S. Sclater, Capt. Campbell, H. Jonas, D. Stewart, and the Secretary. Mr. J. P. Jackson (in the absence of Mr. W. B. Carr) and Mr. J. M. Gibbs attended as the deputation from the Lancashire and Cheshire Association.

Mr. Jackson pointed out that the Lancashire and Cheshire Association had ceased to pay its affiliation fee, as it was considered that the B. B. K. A., having accepted their Association for the two counties, support ought not to have been given to an independent Association for Cheshire.

The Chairman pointed out that the object of the B. B. K. A. was to make such arrangements as would tend

to teach the residents of every county a better system of bee-keeping. The area proposed by the L. & C. Association was considered to be much too large for any society to work thoroughly well; moreover, complaints had been received from time to time of the L. & C. Association having neglected their own county, and at the same time were endeavouring to extend their work into North Wales and other adjacent counties. The deputation assured the meeting that no part of the Association's work had been neglected. Every member, however far he resided from the centre of operations, had always received the benefit of the expert if he wished to do so. After some discussion it was unanimously resolved, 'That the Lancashire and Cheshire Association be received in affiliation on the distinct understanding that they confine their operations within the boundaries of the two counties.'

Quarterly Conference.

The Quarterly Conference of the B. B. K. A. and county representatives was held at 105 Jermyn Street, on January 28th. The Rev. H. R. Peel in the chair, there were also present the Hon. and Rev. H. Bligh, the Rev. F. G. Jenyns, the Rev. F. S. Selater, Mr. H. Jonas, Mr. J. M. Hooker, Capt. Campbell, W. O'B. Glennie (Treasurer), and the Secretary. The following counties were represented: viz., Herts, by the Rev. J. L. Seager and Mr. J. P. Sambels; Bucks, by the Rev. S. R. Wilkinson and the Rev. Mr. Clay; Kent, by the Rev. Thos. Sissons and Mr. C. Allen; Dorset, by Mr. W. H. Dunman; Lancashire and Cheshire, by Mr. J. P. Jackson and Mr. J. M. Gibbs; and Wilts, by the Rev. W. E. Burkitt. The minutes of the last conference having been read and confirmed Mr. Dunman moved that the second privilege affiliation be amended, and that in future twenty-eight days' notice be given of any motion to be brought forward at these conferences. Carried.

The subject of teaching practical bee-keeping in Elementary Schools and the various means whereby the young could be induced to take an interest in the subject was discussed at considerable length. The Rev. J. L. Seager announced that he had an interview with one of Her Majesty's Inspectors of Schools and had been informed by him that a suitable reading-book should first be prepared and presented to Inspectors and Schoolmasters. It was announced that such a book was in course of preparation by the Committee of the B. B. K. A. The Rev. Mr. Clay was of opinion that the cause of bee-keeping would be considerably advanced if suitable picture-cards as object-lessons were published by the National Society. The National Society would, in all probability, publish them at their own expense if the subjects were prepared by the Committee of the B. B. K. A. The Rev. F. G. Jenyns considered that much could be done by a lesson-book which aimed to interest children in the history of bees and to teach them the principles (without the technical knowledge) of bee-keeping. The discussion was continued by the Rev. T. Sissons, the Rev. F. S. Selater, and others; ultimately it was resolved that the Committee of the B. B. K. A. be recommended to—

1. Apply to a few of the leading publishers of school-books and inform them that the Association will be glad to supply a few chapters on modern bee-keeping for incorporation in any of their school reading-books that they may contemplate issuing.

2. To take steps for the publication of one or more illustrated subject-cards suitable for use in Elementary Schools.

In reference to the collection of statistics relating to the number of hives, the quantity of honey produced, &c., in the United Kingdom, it was resolved that the Board of Trade be requested through the B. B. K. A. to include the number of stocks of bees possessed by bee-keepers in the United Kingdom in the Annual Agricultural Returns. Some discussion ensued upon the resolution. The Rev. L. Seager considered it most important that such returns should be inserted, if possible. He considered that the Government were not likely to reach the bee-keepers in the first instance, but would probably do so after the Associations had taken some steps towards the collection of such statistics themselves. The Rev. Mr. Clay considered that it was not advisable to have these returns published until fuller returns could be made, as in their present imperfect state they would convey a false impression and be very misleading to the public at large.

The next Quarterly Conference was fixed for Wednesday, April 22nd.

THE ANNUAL GENERAL MEETING.

The Annual General Meeting of the Association was held at 3 p.m. on Wednesday, February 11th, 1885, in the Board Room of the Royal Society for the Prevention of Cruelty to Animals, 105 Jermyn St. James's, the noble President (the Baroness Burdett-Coutts) taking the chair. Among the large audience present were the Hon. and Rev. H. Bligh, Captain Campbell, the Rev. E. Bartrum, the Rev. F. G. Jenyns, Mr. H. Jonas, the Rev. G. Raynor, the Rev. F. T. Scott, Mr. J. Garratt, Mr. F. Lyon, the Rev. W. E. Burkitt, the Rev. J. Lingen Seager, the Rev. Mr. Clay, Mr. T. B. Blow, Dr. Walker, Mr. Baldwin, Mr. H. E. Roberts, Mr. H. G. Key, Mr. N. Royds, Mr. H. Kemble, Mr. G. Carbonell, Mr. H. C. Finch, Mr. G. Solomon, Mr. H. G. Morris, the Rev. Astley Roberts, the Rev. F. Sydney Morris, Mr. H. A. Ellis, Mr. W. Martin, Mr. G. Warren, and the Rev. F. G. Selater. Mrs. Burkitt, Mrs. Cooper, Mrs. Cohen, and several other ladies, also assisted in the proceedings.

The Baroness, in opening the proceedings, said it was hardly possible for any assembly of Englishmen and women to meet that day without referring to the sad news reported in the newspapers, namely, the death of their noble and distinguished countryman, General Gordon. This subject, she felt assured, was foremost in all their hearts at the present time, and she could not help giving utterance to her feelings thereon. (Applause.) They could now only hope that those gallant fellows, several thousands of miles distant from our shores, and who had never yet been defeated in their progress through the desert, might be still able to wipe out the stain which now rested on Great Britain as a nation. She did not believe there was an English person there, or anywhere in the country, who would not have lifted up their hand and voice, and given their money, to achieve what she could not but think it would have been quite possible to do if undertaken earlier, namely, to rescue the gallant soldier, the story of whose fate, as well as that of his small band of warriors, now filled them with sorrow and indignation. (Cheers.) She hoped the meeting would forgive her for this apparent digression. (Cheers.) There was no doubt at this time that the country was in a very unsettled and unsatisfactory condition, and it was the duty of every benevolent institution, as well as every individual, to strive (even though it may be in ever so small a way) to promote its well-being. She knew of no more patriotic action than the endeavours made to revive and stimulate the industries of all classes, especially the poorer classes. That was specially the mission of the Bee-keepers' Association, which merited the confidence, the gratitude, and support of her fellow-countrymen. Her ladyship then called on the Secretary to read the minutes of the last annual meeting, which having been done they were confirmed.

The Secretary read a letter from Sir Thomas Farrer (addressed to the Baroness Burdett-Coutts), in answer to a communication from the President on the subject of the omission of honey exports and imports from the Trade Returns of the Board of Trade, and promising that

the suggestions of the Association shall be considered; also one from Mr. F. H. Lennare, regretting that unavoidable absence from London would prevent him moving the resolution standing in his name on the agenda, namely,—'That in future elections for the Committee, the name and signature of the member be omitted from the voting-paper,' and begging that some gentleman present would act as his *locum tenens*.

The second subject on the agenda was the following resolution, which was carried unanimously:—'That the Report and Balance-sheet issued for the year 1884 be received and adopted, with a vote of thanks to Mr. Kirchner, the auditor.'

We learn from the Report that eighty-seven new members have joined the Association during the year, including one Life Member, and that new County Associations have been formed in Cumberland, Carnarvonshire, Denbighshire, Flintshire, Monmouthshire, Nottinghamshire, Gloucestershire, Pembrokeshire, and that others are in course of formation.

Increased facilities are now given to enable each County Affiliated Association to be represented regularly at the Quarterly Conferences held in London. County Associations may appoint Members residing in London, or elsewhere, to represent them. One or more County Associations may unite together to send one representative to each Conference, who shall be empowered to represent the whole of the Counties so united.

The demand for the Association's publications has increased considerably during the year. New editions of 'Modern Bee-keeping' and Mr. Raynor's 'Queen Introduction,' have been issued, and several new works added to the list.

During the year, thirty-two candidates have undergone examination for Third Class Certificates, at ten centres. Twenty-eight of these were successful; four only—or about twelve per cent—having failed to satisfy the examiners. For Second Class Certificates eleven candinates have competed, at seven centres, of whom six only were successful.

Bligh Competition.—A second competition was commenced on May 20th, and no less than thirty-three entries were made. The rules had been carefully revised by a sub-committee appointed for that purpose, suggestions from the general public having been invited through the columns of the *British Bee Journal*.

The Teaching of Bee-Keeping in the National Schools.—The Committee, recognising the benefit which would accrue to the rural population of the United Kingdom from the teachings of practical bee-keeping in the National Schools as an elementary science, prepared a graduated scheme, and submitted it (through the President of the Association) for the consideration of the Educational Department. In reply thereto, the Committee were informed that the Vice-President expressed his regret that after full consideration of the subject, and reference to Members of Parliament representing various Agricultural Counties, he was unable to include practical Bee-Keeping as a branch of elementary science among the class subjects recognised under Article 109 F. New Code.

A reading book, for use in Elementary Schools, is in course of preparation by the Committee. It is proposed at some future period to bring this matter again before the Educational Department.

Exhibitions.—*Health Exhibition.*—Having regard to the advantages likely to accrue to the cause of bee culture in England by a full representation of the industry at the International Health Exhibition, the Committee took steps to secure the requisite allotment of space, and the co-operation of the principal bee-keepers and implement-makers for that purpose. The number of exhibits was, on the whole, very satisfactory in character. The general collections of Messrs. Neighbour, Mr. S. J. Baldwin, Messrs. Abbott Bros., and others, were both interesting and instructive, and attracted attention from the many visitors during the course of the season.

The Bee Department of the Royal Agricultural Show, held at Shrewsbury on July 14th, and following days, resulted in a considerable extension of the Association's work in North Wales.

The Committee notice with satisfaction the formation of Honey Companies on a commercial basis, which promise, if successful, to provide a safe and ready market for the honey produce of the country. Members will no doubt see their way to give them such encouragement as the importance of the question demands.

An appeal is made for increased support to enable the Committee to extend their work.

Mr. J. Garratt proposed a vote of thanks to the retiring Officers and Committee, which he thought was richly deserved by those gentlemen, who had given hours and days of their time without reward to the cause of bee-keeping. Their self-sacrifice was worthy of the best acknowledgment.

The Rev. J. Lingen Seager seconded the motion, and said the excellent work done by the parent Committee had not been without its effect on the Branches. He was convinced that much more interest was taken in the work of their particular Branch by county members than would otherwise be when the latter became aware that the local body was in affiliation with the parent Association.

The resolution was carried unanimously.

The Rev. F. T. Scott proposed a vote of thanks to the Council of the Royal Society for the Prevention of Cruelty to Animals for the gratuitous use of their Board-room for Committee and other meetings. Before speaking to the resolution, he would like, as a member of the Committee of the B.B.K.A. for the past year, to express his thanks for the cordial vote just passed. He need not say much to commend to their favour the motion he had proposed. The Committee could not overrate the value of the assistance lent them by the R.S.P.C.A., and the Baroness herself, without whose powerful aid they could not have assembled month after month, and year after year, in the splendid hall which now held them.

The Rev. G. Raynor seconded the vote, saying that the R.S.P.C.A. and the B.B.K.A. mutually assisted one another. The Society helped the Association because the latter aided the former in carrying out its programme by advocating a more humane system of treating bees. He quite endorsed all that Mr. Scott had said.

The resolution having been carried unanimously, the Baroness thanked the members for their kind vote, and said that the President and Council of the R.S.P.C.A. fully recognised the valuable work which was being done by the Association—namely, in the improvement of hives, in the combating of an ignorant inclination on the part of some persons to destroy bees, and in the endeavours on the part of the Association to get bees accepted as an assistant to the agriculturist and the horticulturist.

The Rev. E. Bartrum, in proposing the election of the President, Vice-Presidents, Treasurer, Auditor, Analyst, Librarian, and Secretary for the year 1885, said with regard to the re-election of the Baroness Burdett-Coutts he need not ask for any opinion on that point. He was a quite certain they all recognised her as their true Queen Bee, and that she was as indispensable to the Association as the queen to the hive. They all trusted she would be spared many years to occupy the position she now held. Mr. Glennie (Treasurer) had been their Treasurer for many years, and his worth and merits were well known. Mr. Kirchner (Auditor) was thorough in his work, and well deserved the thanks voted to him. Mr. Otto Hehner (Analyst) was one of the most rising

young chemists of the day, and a gentleman of whom they might well be proud. He had rendered the most valuable services to the Association. Their old friend, Mr. Henderson (Librarian), was most earnest in the cause they were promoting, his responsible work being a labour of love to him. Last but not least (certainly so far as work was concerned), Mr. Huckle (Secretary) had shown himself most assiduous in his duties. He was a man of rare and exceptional practical ability. All these gentlemen he (the speaker) proposed for re-election.

Captain Campbell seconded the resolution, saying that the different officers mentioned by Mr. Bartrum were thorough hard-working bees, and they deserved well of the Association.

The resolution was carried unanimously.

The Hon. and Rev. Henry Bligh said with regard to the Election of Trustees, it had been suggested that the appointment of Trustees for one year only was open to objection on the ground that in the event of any legal suit, in which the Association was concerned, pending at the time of the retirement and re-election of Trustees legal difficulties might arise. This would be obviated by the election of permanent Trustees. He therefore proposed that the President, the Treasurer, Mr. T. W. Cowan, the Rev. H. R. Peel, and the Rev. G. Raynor, be constituted the Trustees of the Association.

Mr. H. Jonas seconded the resolution, which was carried unanimously.

The Secretary read the names of the Committee who had been elected to office for the year 1885 as follows:—Mr. T. W. Cowan, the Rev. H. R. Peel, the Rev. G. Raynor, the Rev. E. Bartrum, the Hon. and Rev. H. Bligh, Captain W. Bush, R.N., Captain C. D. Campbell, Mr. J. M. Hooker, the Rev. F. G. Jenyns, Mr. H. Jonas, the Rev. F. S. Sclater, Mr. D. Stewart, Dr. G. Walker, Colonel E. Smyth, and Mr. W. H. Dumun.

The Hon. and Rev. H. Bligh proposed a vote of thanks to Mr. Dunstan, who had kindly acted as scrutineer of the voting papers, which was seconded and carried unanimously.

Captain Campbell stated that he had received a letter from Mr. Lemare asking him to propose or support the motion which he (Mr. Lemare) would have brought under the notice of the meeting could he have been present. He (Captain Campbell) wished to say that he did not agree with Mr. Lemare's proposal, and consequently could not support the motion, which was unanimously negatived.

The Hon. and Rev. H. Bligh explained that three prizes of 5*l.* each (two by the Baroness Burdett-Coutts and one by the Rev. H. R. Peel) had been offered to be balloted for by all those branch Associations which had conformed in every respect to the rules of affiliation.

The prizes having been balloted for in the presence of the meeting, the Baroness announced that Cornwall, Wiltshire, and Kent were the successful competitors.

Mr. Lyon, regretting the absence of the Rev. Mr. Peel, who was unavoidably detained in the country by domestic affliction, rose to move the resolution on the agenda standing in Mr. Peel's name. He thought that the Association ought to have a reserve fund to fall back upon in case of any emergency, and this was only to be obtained by investing life-subscriptions.

The Rev. E. Bartrum seconded the motion, strongly advocating the policy of its adoption.

Mr. Garratt wished to know under what circumstances it would be considered justifiable to draw on the invested property.

A lengthened discussion took place, in which Captain Campbell, the Rev. F. T. Scott, the Rev. E. Bartrum, Mr. Garratt, Mr. Lyon, and the President took part. It was ultimately agreed that the resolution should be put to the meeting in the following form:—'That it is desirable that a minimum sum of 15*l.* shall be invested annually on account of sums already received for life-members' subscriptions; and that in future all such sums shall be invested, and not applied to the expenses of the current year; and that the sum so invested shall not be appropriated by the committee without the consent of a general meeting of the members.' This motion having been proposed by the Rev. E. Bartrum, and seconded by Mr. Garratt, was passed unanimously.

In reference to the last item on the agenda for discussion, namely, 'The recommendations of the Committee for the adoption of a standard size for one and two-pound sections,' the Secretary read an extract from the minutes of a Committee meeting, held on January 21st, 1885, as follows:—'The Sub-committee appointed on May 14th, 1884, to consider and report as to the desirability of the Association adopting a standard size for one and two-pound sections, presented their report, recommending that such standard sizes be for one-pound sections, $4\frac{1}{2} \times 4\frac{1}{2} \times 2$ in., and for two-pound sections, $5\frac{1}{2} \times 6\frac{1}{2} \times 2$ in. . . . . The motion that the report of the Sub-committee be received and adopted by the Committee was carried.'

The Rev. G. Raynor read a letter from Mr. Bellairs (Secretary of the Hampshire Association), deprecating the adoption of any standard size for sections, which he thought might be allowed to vary in size.

The Rev. J. Lingen Seager handed to the President some resolutions passed at a meeting of the Herts branch of the B.B.K.A., held the previous day, which suggested the undesirability of adopting a fixed standard at present.

The Rev. F. T. Scott said he thought this subject had not been sufficiently ventilated among bee-keepers to warrant them in coming to a decision on it. There was such a diversity of opinion on the matter that the consideration of it had better be deferred for another year, and he begged to move a resolution in accordance therewith.

The Rev. E. Bartrum seconded the motion. He happened to know that Mr. Cowan and Mr. Peel were of opinion that a definite decision on this question had better be deferred for the present.

The Rev. G. Raynor thought this matter should remain open for the present.

The Rev. F. G. Jenyns quite agreed in thinking it desirable that this subject should not be dealt with then. It was very important that the opinions of the Branches should be ascertained, and suggestions invited from all quarters before a settlement of the question was arrived at.

The Rev. Mr. Clay said his friends of the Bucks Association felt that sufficient time had not yet been allowed for a proper consideration of the question.

The consideration of this matter was then adjourned.

The Rev. J. Lingen Seager asked whether, in consequence of the decision just arrived at, the stipulation regarding the size of sections for exhibition at the Preston Show could now be withdrawn.

The Rev. J. Lingen Seager moved, and Mr. Jonas seconded, 'That, if possible, the rule respecting the standard for the Preston schedule of sections be rescinded,' which was carried unanimously.

Mr. Jonas, on behalf of the Committee, said that if not too late every effort should be made with the Royal Agricultural Society to carry out the resolution.

The Secretary said he apprehended no difficulty in the matter provided the Royal Agricultural Society would give their consent to the alteration, but it was very doubtful if they would do so.

The Rev. E. Bartrum moved, and the Rev. F. G. Jenyns seconded, a vote of thanks to the President, which was carried by acclamation and briefly acknowledged by her ladyship, after which the proceedings terminated.

COUNTY ASSOCIATIONS.

Reports of several of the County Associations are to hand and show the following list of members:—

Hertfordshire	404	Herefordshire	130
Kent	377	Cornwall	151
Staffordshire	355	Bedfordshire	134
Buckinghamshire	339	Leicestershire	112
Norfolk	244	Oxfordshire	103
Essex	213	Huntingdonshire	91
Hants and Isle of Wight	200	Somersetshire	82
Wiltshire	175	Cumberland	66
Dorsetshire	173	Shropshire	55

The names of the several representatives appointed to attend the quarterly meetings of the British Bee-keepers' Association, will appear in our next issue.

ASSOCIATIONS.

CORNWALL BEE-KEEPERS' ASSOCIATION.

The annual meeting of this Association was held on Wednesday at the Town-hall, Truro. Present—the Rev. A. R. Tomlinson, Mrs. Polwhele, Mr. G. E. George, Mr. G. Gradidge, and Mr. C. Kent, hon. sec.

The report of the committee was as follows:—"In presenting their third annual report the committee have pleasure in announcing steady progress in bee-keeping throughout the county. There are now on the books of the Association 152 members. The annual value of the subscriptions is 44*l.* 9*s.*, but there are still subscriptions in arrears amounting to 7*l.* 13*s.* The total income has been 62*l.* 13*s.* 6*d.*, and we have expended 56*l.* 1*s.* 10*d.*, leaving a balance at the bank on the 31st December of 6*l.* 1*s.* 10*d.* At that date there were prizes unpaid amounting to 15*l.* 11*s.* 6*d.*, besides several outstanding bills and half the cost of our new bee tent. Their financial condition, therefore, is not so good as they could desire, but the committee trust by the exercise of strict economy to overcome present difficulties and to put the Association into a more satisfactory position. The past season has been all that could be desired from a bee-keepers' point of view. Bee-keeping has been taken up by several in the county as a commercial enterprise, and with very fair results. One of their cottage members produced over half a ton of honey, the whole of which was disposed of at remunerative prices. In consequence of the formation of the British Honey Company and the Bee and Fruit Farming Company, there will in future be greater facilities for the disposal of the produce of their apiaries, and they hope that bee-keeping will advance in proportion as those market facilities increase. The medals and certificates given by the B.B.K.A. were awarded at the Truro show as follows:—Silver medal—Rev. C. R. Sowell, St. Goran; bronze medal and certificate—Mr. H. Mount, Penzance. In conclusion, the committee would again urge each member to do his utmost to secure fresh subscribers, and so enable them to carry out the work they have undertaken in a more efficient manner.

The statement of accounts showed liabilities amounting to 48*l.* 18*s.* 10*d.* and assets 33*l.* 14*s.* 10*d.*, leaving a debit balance of 15*l.* 4*s.*

Mr. George stated that he had disposed of a large quantity of honey to Messrs. Furniss and Co., who used it in the manufacture of biscuits.

The Secretary stated that Messrs. Furniss and Co. had also purchased of other members of the Association. Messrs. Furniss had manufactured large quantities of honey biscuits during the past year. They commenced the making of these biscuits through his representations, and he had reason to believe that the same firm would next season consume still larger quantities of honey than they had in the past.

The following were elected as officers for the ensuing year: President—The Right Hon. the Earl of Mount-Edgcumbe. Vice-Presidents—The Hon. and Rev. J. Townshend Boscawen, Mrs. Digby Collins, Sir James McGarel-Hogg, Bart. M.P., Mr. T. Martin (St. Austell), Lord Robartes, Sir John St. Aubyn, Bart. M.P., the Right Hon. Earl St. Germans, Mr. A. Pendarves Vivian, M.P. Treasurer—Mr. A. P. Nix (Miners' Bank, Truro). Committee—Mr. A. Bailey (Liskeard), Mr. W. K. Baker (Towednack), Mr. J. Branwell, jun. (Penzance), Mr. G. H. Chilcott (Truro), Mr. G. Dixon (Truro), Mr. G. H. Fox (Falmouth), Mr. G. Gradidge (Truro), Mr. W. N. Griffin (Alphington, Exeter), Mr. G. E. George (Probus), Mrs. J. W. Hockin (Flushing), Rev. J. A. Kempe (St. Breward), Mr. J. Lander (Lavedon, Bodmin), Mr. H. B. Neame (Portreath), Mr. W. Prockter (Launceston), Mr. T. R. Polwhele (Polwhele, Truro), Mrs. Polwhele (Polwhele, Truro), Rev. W. Rogers (Mawnan), Mr. J. Rowse (St. Agnes), Rev. C. R. Sowell (St. Goran), Rev. J. Symonds (Baldhu), Mrs. Tom (Rosedale, Truro), Rev. A. R. Tomlinson (St. Michael Penkivel), Mr. J. W. Wilkinson (Perran-ar-worthal), Mr. J. Williams (Scorrier House, Scorrier). Mr. C. Kent (Truro) was elected secretary and local representative at the meetings of the British Bee-keepers' Association.

Votes of thanks to the secretary and to the Mayor for the use of the room terminated the proceedings.

DEVON AND EXETER BEE-KEEPERS' ASSOCIATION.

The annual meeting of the members of the Devon and Exeter Bee-keepers' Association was held at the Guildhall, Exeter, Friday, Feb. 6. The President of the Association (Mr. W. H. Ellis) occupied the chair; and there were also present the Right Worshipful the Mayor (W. Brown, Esq.), the Right Hon. the Earl of Devon, the Rev. J. G. Dangar, and Mr. W. N. Griffin (Hon. Secretaries), the Rev. J. Dickerson, the Rev. P. Williams, Admiral Moorman, Captain Heysham, R.N., Messrs J. Thacker, Bale, Michelmore, C. J. B. Sanders, Church, Cowan, F. Clapp, Wivell, Honey, &c.

The report of the Committee was read by the Rev. J. G. Dangar, from which it appears that the Association is now free from debt, and there is cash in hand. During the past year only one exhibition took place, in consequence of the necessity for retrenchment, and by reason of the loss which fell on the Society consequent on the wet weather prevalent at the numerous shows of 1883. The Show was held on May 21st, 22nd, and 23rd, in connexion with the exhibition of the Devon Agricultural Society, at Exeter, and in all respects it was a most successful display. At the close of 1884 it was deemed advisable to take a census of the hives owned by the members of the Association in the County of Devon; inquiries were also made with regard to other matters, *e.g.*, the number of hives in the locality of any member, the amount of honey harvest, the character of the hives in use, whether bar-framed or skeps. The replies amounted to only 84 in number. The amount of honey shown by these returns was disappointing and misleading: many having no account of the quantities taken made no return. The total shown was 8923lbs., 6294lbs. of which was comb honey, 2629lbs. run or extracted honey. The deduction from the returns is that from members and non-members, there had been produced in the county a grand total of 48,598lbs., or 21 tons 13 cwt. 12lb., and allowing 10*d.* per pound for comb and run honey, the honey gathered in Devonshire is worth 2024*l.* 18*s.* 4*d.*

The statement of accounts showed that the receipts had been—annual subscriptions, 39*l.* 17*s.* 9*d.*; donations,

9*l.* 16*s.*; bee-tent at Bideford, 1883, 10*s.*; advertisements in annual report, 1*l.* 14*s.*; grant from the County Agricultural Association, 10*l.*; ditto from Local Committee, 10*l.*—71*l.* 17*s.* 9*d.* The receipts from the exhibition at County Agricultural Show amounted to 20*l.* 1*s.* 8½*d.*; making the total receipts, 91*l.* 19*s.* 5½*d.* On the expenditure side of the account there appeared—balance due to the Treasurer, 44*l.* 5*s.* 4½*d.*; payment on general account, 15*l.* 12*s.* 10*d.*; expenses in connexion with the County Agricultural Show, 25*l.* 17*s.* 5*d.* After meeting all expenses there was a balance in hand of 6*l.* 3*s.* 10*d.*

The Earl of Devon, in moving the adoption of the report, said he had great satisfaction in calling attention to the fact that the funds showed a considerable advance. He must confess to ignorance as to the details of the work of the Association, but that did not diminish the anxiety he had to promote the object it had in view, as far as his means would permit. He concurred in the suggestion that they should have a paid expert who should at certain times go round and give instruction in the various parishes to those who were desirous of keeping bees, how to manage them and correct anything which was wrong. He believed that in several parishes, if notice were given of the attendance of their representative, meeting of the labourers and others would be summoned by the clergyman or the squire, so that the expert might have an opportunity of explaining to them the advantages of his system and mode of management. He thought nothing better could be done which would be more likely to extend the operations of that very useful Society than the appointment of an expert to pay such visits from time to time. He had said that this was a very useful Society, and there were many points in which it presented its usefulness. It did not merely promote apiculture and make people acquainted with the habits of the bees, but it familiarised children with the work of God in very small animals, and it promoted the economical well-being of the working-classes. They all knew that while the wages of the labourer could only, in the long run, be regulated by the law of supply and demand, yet they knew that there were certain ways in which without interfering with that great principle, the labourers and their families might be assisted to a certain extent. He believed the allotment of small pieces of land was one such measure, and another was to teach him to keep bees, and how to do so properly. He supposed there were localities where this could not be done; but there must be many localities in this county where the keeping of bees intelligently would be of material advantage to the labourer. On that ground, therefore, he should like to see the operations of the Association extended, and he commended it to their support.

Captain Heysham seconded the adoption of the report, and it was carried unanimously.

Mr. Wivell moved that the following be elected as officers for the following year:—President, Mr. W. Horton Ellis; Vice-Presidents, the Right Worshipful the Mayor of Exeter, the Sheriff of Exeter, the Right Hon. Lord Clinton, Viscountess Chetwynd, Lady Anna Maria Courtenay, Sir John Kennaway, Bart., M.P., Colonel Walrond, M.P., Mr. E. Johnson, M.P., and Mr. H. S. Northcote, C.B., M.P.

Mr. Dennis moved that the following form the Council for the year:—The Rev. J. Bartlett, the Rev. E. I. Gregory, the Rev. P. Williams, Admiral Moorman, Captain Heysham, and Mr. J. Thacker, with the Rev. J. G. Dangar and Mr. W. N. Griffin as Hon. Secretaries, and the Rev. J. Dickenson as Treasurer.

The following gentlemen were appointed local representatives of the Association for the current year:—Mr. James C. Butler, Newton Abbot; the Rev. F. T. Salmon, Gittisham; Mr. W. S. Spearman, Plymouth; the Rev. J. B. Williams, Collumpton; the Rev. M. L. Gooby, Buckfastleigh; the Rev. J. R. Powell, Highampton; Mr. W. Hodgson, Ottery St. Mary; Mr. John Parkhouse, Kingsbridge; and the Rev. F. Gilbert White, Ashburton.

Captain Heysham read a paper entitled 'A Glance at our Work and its Needs,' and votes of thanks to him, to the President, and to the Mayor, concluded the proceedings.

THE GLOUCESTERSHIRE BEE-KEEPERS' ASSOCIATION.

The general meeting of the above Association took place in Cheltenham on Thursday, Feb. 5th, General Muspratt-Williams presiding. The report of the last year was read, and was considered quite satisfactory, 144 members having joined the Association since last April when it was formed. The balance sheet showed a deficit of 21*s.*, and this was better than was expected as the young Association lost heavily at their first annual exhibition held at Stroud. Much regret was expressed at the meeting that Mr. Zachary, the Hon. Secretary, has been obliged to resign his post, and the Rev. J. Turner, Colne Rogers Vicarage, near Northleach, was elected in his place. The feeling of the meeting was strongly in favour of buying a bee-tent so soon as the funds will permit, the Local Secretaries and Committee feeling confident the number of members will be greatly increased during the coming season.

HANTS AND ISLE OF WIGHT BEE-KEEPERS' ASSOCIATION.

The annual report of this Association is to hand, and is in every way an eminently satisfactory one. After dealing with the progress of bee-keeping throughout Great Britain, it proceeds to recapitulate the work of the Association during the past year, alluding to its having sent a gift of 7*l.* to the B. B. K. A. 'to assist the funds of weaker kindred associations,'—a fact which ought not to be lost sight of. A sum of 48*l.* 10*s.* 6*d.* was given away in prizes at the various shows; an expert was sent round in the spring and also in autumn at considerable expense; and after meeting other expenses, including a heavy item for the Royal Counties Agricultural Show in 1883, and a grant to the Wilts B. K. A. towards the loss incurred at the Weyhill Show, the Hants Association carries forward a sum of 34*l.* 17*s.* 1*d.* Alluding to the present method of preparing honey for market, the report says:—'Your hon. secretary had the honour of judging along with Mr. Alfred Neighbour and others what was probably the largest and finest exhibition of honey ever held in Great Britain—that of the East of Scotland Bee-keepers' Association, held in Dundee September 11th and 12th, at the great International Flower Show. He understands there were about 5000 pounds of honey staged, the greater part of which was in sections, *each of which was separately glassed, and nearly the whole of which was sold during the show!*' And it proceeds to urge upon the members the importance of adopting a plan which will make sections more portable and marketable than the old system of show cases. It also draws attention to extracted honey, which apparently is neglected in Hants in favour of super honey. The committee, it says, 'would urge upon the cottage members particularly the importance of paying greater attention to this subject. Where appliances are obtainable, the profit arising from the sale of extracted honey is usually far larger than that yielded by sections, as was shown by the sales of honey during the two days of this show, in which the proportion of extracted as compared with comb or section honey was as six to one in favour of the former. The public prefer, for various reasons, honey in bottle.'

Allusion is made to the efforts of the Rev. V. H. Moyle to secure the use of honey in the manufactures,

to whom it says all bee-keepers are indebted, and it expresses a hope that the new venture, the 'Honey Company,' may enjoy a successful career. The labour of lecturing has again fallen in great measure upon the hon. secretary, Mr. Bellairs, assisted by Mr. Medlicott and others; and with regard to the show held at Farnborough (Aug. 20), it says, 'The advantage of free lectures was again secured, through the exertions of the hon. local secretary, Mr. W. T. Joyce, to whom the thanks of the Association are due. Through his exertions a large number of cottagers from the district attended, and competed for prizes; and it is not too much to say that Mr. Joyce has done more than any one to popularise bee-keeping in the north of the county. Much enthusiasm was evinced throughout the show, and it may be of interest to say that amongst the exhibitors (but not competitors) was H.I.M. the Empress Eugénie. The importance of free lectures cannot be overrated, and it is much to be wished that a charge should not be necessary. Until, however, a larger number of Hants bee-keepers support us this seems scarcely possible.'

There has been an increase of fifty-four members to the Association, which now numbers more than 200, the vast majority of whom subscribe *5s.* and upwards, although many of these could doubtless avail themselves of the rule which allows subscriptions of *2s. 6d.* and *1s.*

The Annual General Meeting is to be held at noon, February 19th, at the rooms of the S. P. C. K., 6 Portland Street, Southampton.

HEREFORDSHIRE BEE-KEEPERS' ASSOCIATION.

The Annual Meeting was held at Hereford on January 26th, the President, Jas. Rankin, Esq., M.P. being in the chair. The Hon. Sec. read the report, the purport of which was as follows:—

Lectures on Bee-keeping were given in the spring at Ross by the Hon. Secretary, and at Ledbury, Bromyard, and Hereford, by Mr. C. Brown, of the Worcestershire Association. The attendance was not large in either case, but gave rise to an accession of ten members to the ranks. Experience points out that such lectures attract larger audiences in villages than in towns.

It was decided early in the year to grant to *bonâ-fide* cottage members a flat-topped straw hive and crate of sectional supers (value *5s. 6d.*) on payment of *2s. 6d.* in addition to their subscription. Nine members availed themselves of this offer, which it is proposed to continue. Copies of the *Bee Journal* have been subscribed for, for the reading-rooms at Hereford, Ross, and Ledbury.

The practical work of the season was opened with the three days' meeting of the Herefordshire Agricultural Society at Ledbury, June 24th, 25th, and 26th, when an exhibition of everything relating to bee-culture was held on a much larger scale than had yet been attempted in the district. Several novelties were introduced at this meeting, the first being a most interesting microscopical exhibition illustrating bee-life. This was held in the square manipulating tent, the microscopes (11 compound and 8 simple ones) being ranged round the central opening. This department proved most attractive to the general public; it was open free the first day, but it was afterwards found necessary to make a charge, the manipulating tent being then connected with it by a short corridor. The microscopes were lent by gentlemen in Hereford and Ledbury, the objects by the Hon. Secretary and Messrs. Abbott, and the success of the undertaking was in a great measure due to the labours of Mr. J. E. Ballard, of Ledbury, who devoted most of his time for three days to it. A Bee-keepers' Convention, which was held on the show ground, was but poorly attended; it was perhaps the first attempt of the kind in England: they are common in the United States. The experiment was sufficiently successful to encourage future attempts in the same direction. The five subjects mentioned on the programme were satisfactorily discussed. An exhibition of hive-making in straw was another novelty of much interest. The two manipulating tents have been much used throughout the season, and every horticultural show throughout the county (except Kington) has been visited.

The pecuniary results of these visits have been unsatisfactory, the receipts not being sufficient to pay expenses; and as the public seem no longer willing to pay to witness such exhibitions, the committee have decided not to charge in future for admission, but to visit only those societies who will pay a fixed sum as grant towards expenses.

The expert's spring and autumn tours have been a source of great satisfaction to members, and as no charge is made for these visits, and their cost (where fully taken advantage of it) exceeds the amount of subscription, members should do all in their power to lessen the expert's expenses by taking up as little of his time as possible, and when convenient supplying him with conveyance to or from the next member.

The committee decided not to hold the honey show of the year in connexion with any society which charged admission, but to combine it with a Honey Fair to be held on the first Wednesday in September, in the Butter Market at Hereford. The result was most successful in every way. The fair had been well advertised, and was visited by hundreds of interested spectators, many of whom bought freely. Nearly two tons of honey—all of which was the property of the county—were staged, and a good proportion to the value of *65l.* sold. The general experience was that extracted honey sold more freely than sections, even at the same price. The system of selling adopted was for all cash to be paid over to one cashier, whether sold by members themselves or by the salesmen; every jar or section was labelled with initials of owner, and price, and every sale entered at the time, giving the owner's initials in books provided at the counters. The amount of work in connexion with the fair is very great, and much more volunteer assistance will be required in the future.

The increase of members during the year from 112 to 168 has been most satisfactory, but there still remains a large number of bee-keepers in the county who have not yet joined. Members would do a service to the Association by forwarding to the secretary a list of those in their neighbourhood.

Steady, though slow, progress has been made in the work of the Association in Radnorshire, several new members have joined, among them a well-known advanced bee-keeper, Colonel Pearson, who has lately come to live near New Radnor. It is hoped, with the accession of more members, to appoint a local expert in Radnorshire; the county is well suited for bee-keeping.

In conclusion, the Committee point with pleasure to the honey fair, as evidence that the work of the Association during the past three years has not been without result. Three years ago there was hardly a bee-keeper in the county who regarded his bees as a means of adding to his income; now there are many such.

The balance-sheet showed a larger expenditure than income, for although there was a balance in hand of *10l. 5s. 8d.*, there were also liabilities to the amount of *18l.*; the assets, however, being considerable, the Association is in a sound financial position.

In moving the adoption of the report, together with the statement of accounts, the President said that, considering the very recent establishment of the society, the figures and facts to which they had listened were of a very hopeful and encouraging character. He had no doubt that, as the society gained in the number of members, and as it became better known throughout the

length and breadth of the county, it would be very much more elaborate. He could not conceive any person who had turned his attention in the very slightest degree to the question of bee-keeping, having the slightest doubt as to the exceeding advisability of keeping bees, and especially among the cottage inhabitants of the county. He regretted that, having had the honour of being elected the President for the past year, he should have done so little for the society; but, if it were acceptable to the society, he should be glad this year to give 5*l.* towards any prizes which might be considered best suited to the interests of the Society. He should be very glad, though he did not quite know what the cost of the lecture would be, if it could be arranged for a lecturer to give a few lectures on bee-keeping in his neighbourhood—that of Much Dewchurch and Much Birch. If that could be done he would venture to say that he would get a very good audience who would take a deep interest in the matter.

Dr. Bull seconded the Report. He observed that the President had rightly remarked upon the great advantage of bee-keeping to cottagers, who might thereby add to their income; but there was a much greater advantage than the one thus indicated, and it was the fertilisation of flowers by the bees. In the County of Hereford they depended greatly on the apple crops, and he ventured to say there could be adopted no means which would insure as good an apple crop as the keeping of bees, which fertilised the flowers whenever the sun shone. Bee-keeping, therefore, was of greater importance to the county of Hereford than to many other counties.

Colonel Pearson, supporting the proposal of the adoption of the report, considered the establishment of a honey fair a good thing. The report stated that extracted honey was more easily sold at the honey fair than sections. Section honey, in small quantities, was nice to place on the breakfast-table: but for commercial purposes he favoured extracted honey. He thought the proposal to grant *bonâ fide* cottage members a flat straw hive at a small price a very good one.

The following reports were submitted by the expert of the Association (Mr. Hole), and the assistant-expert (Mr. Meadham):—'I have to report that on the 12th of April, 1884, I commenced the spring tour to members of the H. B. K. A., but the weather proving inclement, I postponed further visits till the 22nd of the month, and finished on the 26th of May, visiting 65 members, owners of 226 stocks, in 19 bar-frame hives, and 107 skeps or plain boxes. Members, generally expressed their satisfaction at what had been done for them. I would mention here, as an instance of the value of an early spring visit—season permitting—that I called on a cottager with a view to getting his subscription as a new member. This was on May 8th, and I found here four skeps which all contained bees a few days previously, but when I examined them one lot only was alive. Of course, the bees had required spring feeding. The owner seemed perfectly ignorant of this, and stated that they had been flying strongly; but in all probability, a little early advice would have saved three stocks for this cottager. I found in the spring that many lots of bees were lost quite late, in consequence of this neglect of the spring feeding. The autumn tour was commenced on October 1st, and finished October 22nd, visiting 48 members, owners of 237 stocks, 152 frame-hives and 85 skeps. For the autumn tour I had the assistance of Mr. Meadham, and the result shows that the use of the bar-frame is on the increase, and that generally the bee-keepers are pleased with the results of the past season. They begin to see that in supporting the Herefordshire B. K. A. they are benefiting themselves and the cause, knowing that such an Association is calculated to bring before the notice of consumers value of the honey as now produced on the modern system. (Signed) J. R. Hole.'—'I beg to state that during my autumn tour I visited ten members, and inspected their stocks—uniting and transferring in several cases. Their united apiaries contained 44 stocks, 32 bar-frame hives, and 12 straw hives. (Signed) Moses Meadham.'

The following officers were re-elected:—President, Jas. Rankin, Esq., M.P.; Hon. Secretary, Mr. A. Watkins; Treasurer, Rev. F. S. Hooke Vaughan; Expert, Mr. J. R. Hole. The Committee were also re-elected with the addition of Mr. A. P. Small. Additional officers were elected as follows:—Auditor, Dr. Chapman; Representatives to B. B. K. A. the Secretary and Treasurer; Assistant expert, Mr. M. Meadham.

Several alterations were made in the rules, which it was stated would be printed along with the report for circulation among the members.

The Rev. J. E. Sale proposed, and Dr. Bull seconded, that the certificate given by the British Bee-keepers' Association be awarded in the cottagers' class in the future.

In accordance with a rule of the Association, a hive was balloted for, and the winner was Mr. Radcliffe Cooke, of Helen's.

LEICESTERSHIRE BEE-KEEPERS' ASSOCIATION.

The General Meeting of this Association was held on Jan. 29th, by kind permission of the Mayor, in the Mayor's parlour, Old Town Hall, Leicester. The attendance was rather sparse, probably on account of the boisterous weather. Among those present were Revs. A. M. Rendell and T. W. Goddard, and Messrs. Carter, Bryan, Walker, Foxon, W. S. Pridmore, Marriott, W. P. Meadows, C. Redshaw, Bridge, A. Willett, Johnson Ward, Mrs. Ball, and the Secretary.

Mr. T. Carter was voted to the chair, and the proceedings were opened by reading the Report.

A discussion followed in which Mr. Bryan drew attention to the adulteration of honey, and mentioned the fact that a tradesman in Leicester advertised pure C) honey at 5*d.* a pound. Reference was made to Mr. Hooker's notes on 'The adulteration of honey,' in the *British Bee Journal*. It being stated that the British Bee-keepers' Association was taking up the matter, it was decided to leave the matter in its hands.

The deficit in the balance-sheet was next discussed, and various means of reducing it were suggested. It was finally settled that there should be only one show held during the current year, viz., that at Market Harborough, and that the Committee should base their regulation of the amount of the prizes on the results of the past year. The Report was then accepted, and the following Members were elected to serve on the Committee: viz. Revs. Canon Willes, J. Bird, and J. H. M. de Mowbray, and Messrs. Carter, Walker, J. E. Saunders, C. Billson, Walter S. Pridmore, L. Fosbrooke, jun., Lowe, Johnson Ward, J. W. Bickley, Bond. The Treasurer and Secretary were re-elected, and a gratuity of three guineas awarded to the latter.

The question of employment of an expert to visit members, &c., was introduced by Mr. W. S. Pridmore. A lively discussion followed, in the course of which Mr. Bridge of Countesthorpe, expressed his opinion that the majority of members would not care to have a stranger meddling with their bees; other members took the opposite view, and finally it was agreed that the Secretary issue an explanatory circular asking replies to the following questions, viz. (1) Are you in favour of engaging an expert? (2) How much will you subscribe to an expert fund?

It was also decided that lectures on bee-keeping should be given in different parts of the county, and the volunteered services of Messrs. Bridge and W. S. Pridmore were accepted. Mr. Bridge also offered to lend (on long notice) a set of diagrams illustrative of bees

and bee-keeping to any member who desired them as an aid to lecturing.

The proposal that the General Meeting be held in May, so that bee-keepers might have an interchange of views in the busy season, was not pressed as it was suggested that the employment of an expert would answer the same purpose. After the usual votes of thanks, the proceedings terminated.

The next Committee Meeting will be held on Feb. 28th.

WILTS BEE-KEEPERS' ASSOCIATION.

The general meeting of the above was held at Trowbridge on January 30th. The attendance, though somewhat larger than last year, was but small, the day being too wet for long journeys to be undertaken.

The Rev. H. Trotter, Rector of Trowbridge, having been voted to the chair, called upon the Hon. Sec. to read the minutes of the last meeting, which, having been duly signed, he proceeded to read the report of the committee and balance-sheet for 1884. From that it appears that, although thirty-five new members have joined the Association, the total number—184—is no larger than last year, partly owing to many half-hearted bee-keepers having given up the pursuit, as involving too much personal attention—discouraged, too, by previous bad seasons, and partly from the fact that many 'outsiders' have now the opportunity of joining associations in their own counties.

The total paid-up subscriptions from members amounted to 30*l.* (many being still in arrear*), while the takings at bee shows, donations, &c., bring up the total income to 74*l.* 3*s.* 4*d.*, an increase of 16*l.* 16*s.* 3*d.* on the previous year, but still falling short of liabilities.

A long discussion arose as to the best method of keeping the expenditure within bounds for the future. Attention was drawn by a member to the item 'Hon. Sec.'s attendance and expenses as "Delegate" at four quarterly conferences of B. B. K. A., 5*l.* 16*s.*,' and it was proposed 'That, for this year at all events, these attendances be discontinued, being, in a manner, *luxuries*, and not really benefiting the county associations.'

The Hon. Sec. pointed to the resolution on the subject passed at the general meeting in 1882, and drew attention to the 'Conditions of Affiliation,' and further stated that the B. B. K. A. laid greater stress than ever on the county associations being regularly represented at these conferences. He also intimated that if the resolution of 1882 was rescinded, and no delegates' expenses paid for attendance at all these meetings, he should decline re-election as Hon. Sec.; but that *otherwise* he would *this* year forego the half-guinea fee to which he has hitherto been entitled, although each of these visits necessitated two entire days' absence from home and the expense of a night in town.

The Rev. J. H. Dixon (till now one of the appointed delegates) spoke most strongly against the proposal, being supported by some who stated that they had themselves benefited indirectly by the delegates' attendance. The proposal was then withdrawn, and the report and balance-sheet accepted.

The meeting then proceeded to the election of the committee, nearly all of whom retain their seats, the new members being:—Rev. C. W. Honey, as Assistant Hon. Sec. for the Devizes district (vacant for the last year); W. S. Bambridge, Esq.; Mr. C. Warden; and Mr. John Rogers. All the Assistant Hon. Secs. were re-elected, also the Treasurer (T. Herbert Clarke, Esq.) and the Hon. Sec. (Rev. W. E. Burkitt), Mr. Burkitt and Mr. Clark being also appointed delegates for the ensuing year. Mr. Burkitt, holding First Class Certificate of B. B. K. A., retains office as Expert of the Association, and E. Day (Third Class), of Milford Hill, Salisbury, was appointed *Assistant* Expert, in the room of Rev. E. Davenport, who has removed to a distant county.

It was next resolved to appoint a number of District Advisers, and that the Hon. Sec. be authorised to add to the list from time to time.

It is a source of great satisfaction that four members of the Association, during the last year, gained the certificates of the B. B. K. A. as 'Experts in Modern Bee-keeping,' viz., Mr. C. Warden (head gardener to Lady Hervey Bathurst, Clarendon Park) and W. S. Bambridge, Esq., Mus. Bac., of Marlborough College—of the Second Class: E. Day (of Salisbury) and F. Bartley (gardener to General Rice, of Rowde, near Devizes)—of the Third Class. Two or three other members would doubtless have been as successful had there not been obstacles to their entering for last year's examination.

The Hon. Sec. drew attention to the fact that, owing to the low rate of subscriptions paid by the labouring classes, there is great need of far more liberal support from the gentry than has hitherto been accorded if the Association is to extend its operations or even hold its own.

During the past year bee shows were held at Marlborough (two days), Westbury, Wootton Bassett, Chiseldon, and Weyhill Fair, the latter lasting for five days. Nine lectures were given—two garden parties (with bees instead of tennis) attended and seventy-four visits paid to apiaries by Mr. Burkitt, and nearly as many more by Rev. E. Davenport, his late colleague.

The three prizes given at the County Show by the B. B. K. A., were awarded as follows:—The silver medal for best 24 lbs. of section honey and 12 lbs. extracted, to A. G. Radcliffe, Esq., Fonthill. The bronze medal (second prize), Rev. W. E. Burkitt. Certificate for best super *not* sectional, to Mr. H. W. Tayler, Melksham. The judges being W. H. Dunman, Esq., and W. N. Griffin, Esq. (who also examined the candidates for the experts' certificates), on behalf of the B. B. K. A.

The special donations to the Prize Fund last year amounted to only 2*l.* 13*s.*, *this* (together with the many subscriptions left unpaid), the Hon. Sec. pointed out, was the *real* cause of the deficit—in the General Funds. It was, therefore, resolved that, in hopes of securing a more adequate sum this year, every member of the Committee and the district advisers should be provided with collecting cards, with a view to obtaining various contributions, *not only from Members*, but from any interested in country pursuits.

The Hon. Sec. was instructed to endeavour to make arrangements with the Wilts Horticultural Society for holding the County Show in connexion with the Floral Fête to be held in the Palace Gardens, Salisbury, in August.

A special vote of thanks was accorded to the Rev. E. Davenport for his very valuable services rendered to the Association ever since its formation, both as a Member of the Committee and as Expert.

The usual vote of thanks having been proposed and seconded, the meeting broke up.—W. E. Burkitt, *Hon. Sec.*

* A few of these have been sent in since the meeting.

WORCESTERSHIRE BEE-KEEPERS' ASSOCIATION.

The annual general meeting of this Association was held at the Guildhall, Worcester, on Wednesday, January 28th. Among those present were the President (the Earl Beauchamp), Lady Georgina Vernon (Hanbury), Rev. E. Witmore Isaac, Mr. C. H. Haynes, and Mr. E. A. Dimmock (Hanley Castle), Rev. S. Latham, Rev. E. Val. Williams, Mr. B. Henley, M. W. Paddison (Malvern), Mrs. Deacon (Eastbury Manor), Capt. W. B. Williamson, Mr. W. D. Slade, Mr. J. Neal, Mr. J. W. W. Boughton, Mr. H. W. Carey (Worcester), Rev. W. M. Kingsmill (Bredicot), Mr. A. H. Martin (Evesham), Hon. Sec., Mr. G. N. Preen (Kidderminster), Mr. E. B. Foot-

man (Martley), Mr. W. Barnard (Ombersley), and Mr. C. Brown (Bewdley), Expert of the Association.

Mr. A. H. Martin read the report, from which it appeared that during the past year there had been a steady increase in the number of members. At the close of 1883 the Association numbered 176, and now numbers 221, 76 having joined during the year. The income had amounted to 123*l.* 6*s.* 6*d.*, and after paying all the expenses of the year there was a balance of 29*l.* 9*s.* 11*d.* in the hands of the treasurer. During the spring and summer the expert of the Association, Mr. C. Brown, made his first annual tour through the county at the expense of the Association, visiting all those that required his assistance, and numbering in all about 200. He found they possessed on an average four hives each, amounting in total to about 600 hives. He is able to report that considerable advance has been made in the system of management amongst all classes, including cottagers, and that the yield of honey in some parts of the county had been very large. Ten places have been visited by the bee tent during the year, viz., Bretforton, Chaddlesley, Corbett, Redditch, Kidderminster, Pershore, Worcester, Malvern, Madresfield, and Evesham. Short lectures were given by Mr. A. H. Martin on several occasions, and Mr. Brown conducted the manipulations with live bees, and a great deal of interest was awakened.

Lord Beauchamp, in moving the adoption of the report, said he thought that, looking at the extent of the Society's receipts, no one could say other than that the money at its disposal had been most usefully and wisely expended. To diffuse a knowledge of the correct method of keeping bees and obtaining the greatest amount of pure honey was a most laudable undertaking and one which would add to the sum of human happiness among the agricultural population of this country. So long as the cultivation of honey was carried on by a few persons the market for honey—though quite sufficient to absorb all the honey produced—was not a large one. But with an improvement in the cultivation of honey and the greater amount now produced there would have been a difficulty in disposing of the increased store, unless some such undertaking as the British Honey Company had been started which would afford bee-keepers a satisfactory way of disposing of their stores. He had been looking, with some interest, at the objects the Company proposed, and he observed a remarkable silence with regard to one mode in which honey was used in the middle ages. Perhaps most of those present know that mead was one of the useful alcoholic drinks consumed in the middle ages, and it was made chiefly from honey. But the British Honey Company in the attractive prospectus they put forward did not propose to return to the mediæval custom of drinking mead, which would perhaps be rather a difficult thing to develope a taste for in the present state of civilisation. The Company had applied themselves to the much more practical task of providing for the disposal of honey according to the wants and needs of the present day, and he thought those who had at heart the promotion of the cultivation of honey must be indebted to those who had taken such pains to promote this Company, to which he wished all possible success. The study of bees was a most interesting one. He would not say more in the presence of those who knew more about it than he did, but he might, at all events, say he had an opportunity of visiting the bee tent which was brought to the flower show at his own village, and he gained a good deal of information from it, and was much struck with the admirable manner in which the expert of the Society imparted information and handled the bees. He did not think they could look for such an extensive result from the operations of the society during the first year or two as hereinafter. People were a long time taking in new ideas. Those who had kept bees were wedded to their old-fashioned ways of dealing with them, and those who had not kept bees were slow in seeing the advantages to be derived from the cultivation of honey. But no doubt if the Association persevered in what he might call its missionary pursuit of diffusing a taste for bee-culture, in the course of a few years he had no doubt there would be in this county—which was so well suited for it, from its botanical produce—a great increase in the production and consumption of honey. The thanks of the county were due to those who had organized this Association and brought it to its present prosperous state.

Mr. Henry seconded, and the motion was carried.

Mr. Martin read the statement of accounts which showed total receipts, 123*l.* 6*s.* 6*d.* including a balance brought forward of 29*l.* 14*s.* 10*d.* Members' subscriptions, 51*l.* 10*s.* Receipts from bee-tent at shows, 17*l.* 15*s.* 3*d.* Donations to Prize Fund, 10*l.* 18*s.* 6*d.*, and Worcestershire Agricultural Society's donation, 5*l.* Exhibitors' entry fees 7*l.* 10*s.*, and an expenditure which left a balance of 29*l.* 9*s.* 11*d.* and included expenses of expert 26*l.* 5*s.* 3*d.*, expenses of bee tent at shows 8*l.* 8*s.* 7*d.*, expenses of annual show at Pershore 11*l.* 3*s.* 7*d.*, and prizes at annual show 17*l.* 17*s.* 6*d.*

The President and the Vice-Presidents were re-elected, and the following were appointed on the committee: Mr. J. J. Addyman, Mr. Robert Cordell, Mr. E. A. Dimmock, Canon W. W. Douglas, Mr. C. H. Haynes, Mr. J. Hiam (Astwood Bank), Mr. W. B. Henley, Mr. W. F. Gibbon (Pershore), Mr. H. H. Griffin (Hartlebury), the Rev. E. W. Isaac, the Rev. W. M. Kingsmill, Mrs. Piers F. Legh, Rev. N. Ogilvy, Mr. James Partridge, Mrs. Swinden, Mr. Samuel Tombs, Mr. Hervey Wall, Mr. H. Wright (Redditch), Miss Wilson, and Mr. Martin Woodward.

The chairman proposed the re-election of Mr. A. H. Martin as honorary secretary saying that to Mr. Martin's energy and assiduity the Association owed much of its success. The Rev. E. W. Isaac seconded, and the proposition was carried unanimously.

Mr. A. H. Martin, in returning thanks, said that he was much obliged to his lordship for the kind manner in which he had spoken of the services he had rendered to the Association, and as he had done in the past so he would endeavour to do in the future all he could do to promote the objects they had in view.

Messrs. A. H. Martin and C. H. Haynes were appointed to represent the Association at the quarterly conferences of the British Bee-keepers' Association in London.

The annual ballot for the three hives given by the Association then took place. The winners were, Messrs. G. H. Glover, the Hollies, Claines; W. Paddison, Malvern; and Miss Moore, Elmley Castle, Pershore.

Votes of thinks were accorded to the chairman, and to Mr. Martin for his services to the Association

NORTHAMPTONSHIRE BEE-KEEPERS' ASSOCIATION.

As we have no member or representative of any kind in the northern half of the county, I shall be pleased to hear from any lady or gentleman willing to act as district secretary.—J. E. Lamport Gillery, *Hon. Sec., St. James's, Northampton.*

Correspondence.

SPRING MANAGEMENT.

Once again we are coming round to the busy time, and must begin to consider how our bees are to be managed to bring them into proper condition to take advantage of the first—yes, the very first—'spell' of honey weather. We may rest assured that if stocks are strong early, they will with careful management give a good account of

themselves throughout the whole season, while those which are not ready for the earlier incoming will do little more than keep themselves during the same year.

We will suppose that the average colony had been carefully fed during the preceding autumn, and properly stored for winter; when early in the year, finding themselves richly provisioned, the bees will have been steadily breeding for a considerable time before the beginning of March, when the first examination should be made. No colony should be disturbed earlier than the first of that month, unless the owner has been negligent, and is not certain that the stores will hold out. I am compelled to state that the practice of uncapping a portion of the honey so early as Feb. 20, as often advised, is not only unnecessary, but even worse, as the excitement then induced causes a too rapid development of the brood-nest at this period, and consequent premature exhaustion to the nurse bees, which as yet are too few in number to undertake such heavy duties as this plan involves, thereby causing a relapse later on. On the other hand, those which had not been actively stimulated until the middle of March, continue to advance from the first, and are seen to be rapidly increasing in numbers, while the former are for a long time almost at a standstill. Those allowed to rest for a longer period had been permitted gradually to supersede most of the old bees before being forced to greater exertions; thus they have a good base to start upon, and while consuming about half the amount of food, will be found in a much better condition to take the field than those which were disturbed earlier. The only way to obtain the necessary force of young nurse-bees to stand the first strain of active stimulation, is by making sure that the stock has been rich in sealed stores from the preceding autumn: in fact, all should then have been so treated that at the March examination they shall be found stronger in numbers than when closed down for winter.

All stocks must be overhauled on the first of March, but do not even then bruise or slice off the cappings: there will be time enough for that, as will be presently shown. All that is now required is to see that each has more than sufficient to carry it along. Remove all combs not required, and place one heavily stored behind the dummy, with passage under. Those well supplied will spare a comb of honey for a poorer neighbour, placing the same behind dummy if a fair store surrounds brood-nest; should there be but little, let the full comb be inserted in the place of an empty one that may be conveniently removed.

At this examination unite with others those that may be queenless: give clean hives, or clear out all refuse from such as cannot easily be changed, and see that there are no crevices to admit draught: crowd the bees on to as few combs as possible, and see that the entrance is not more than one inch wide: and above all, arrange the quilting, or crown-board, that no heat may escape above the cluster.

This first operation will alone cause greater activity among the bees, and unless stored combs are running short, no other stimulation is necessary until about March 15.—S. Simmins.

(To be continued.)

PRACTICAL BEE-KEEPING.

In answer to Mr. A. Sharp, in last *Journal* on Practical Bee-keeping,' I may say if he makes his hives double-walled and puts an extra entrance in the east side behind, to make nuclei stocks and rear queens in, he would have a practical Combination hive. Having tried various kinds of hives, several of which I now use, before giving my system of wintering (see page 214, for October 15th, 1883) I concluded that the hive I there described for its utility in holding nineteen frames and a dummy was the most efficient I had tried, and have since advised my friends to take pattern by it.

If Mr. Cheshire's Health Exhibition Hive (as described on page 22) had the legs nailed between the walls at the corners, instead of outside, it would hold them very fast and make the hive more rigid and keep out the wet and be very near perfection. I am not a hive-dealer, but I give my experience as a farmer and honey-grower. I manipulate my own hives, and superintend over one hundred more for a brother and friend.—R. Thorpe, *Langrickville, Feb.* 10.

BEE-KEEPING IN SCOTLAND.

I have read the effusions of 'J. A. B.' and, but for the gross imputations upon the integrity of the judges and the attempt to throw a slur upon Scotch bee-keepers in general, and hive-makers in particular, would have treated his article with silence. His sneer at our thirty or forty years' experience, and the serious objections stated against the decision of the judges are sufficient proof to me who 'J. A. B.' is. Let me tell him, however, as I told him at the judging of the Edinburgh show, that it is only those having long experience that are the best suited to adjudicate on anything, and that it would be a wise thing if directors of shows would relegate all novices from the list of judges. The prize takers at Edinburgh have all taken prizes either at England's best shows, or have competed successfully with the English at our own shows. Therefore, when 'J. A. B.' says, 'which would in all likelihood been past over in some of the small English County Shows,' is a very great delusion on his part, or shows the sting of a defeated competition. The bee-furniture at Edinburgh was not only superior, but the prizes were awarded to those that possessed the requirements necessary in bee-keeping; and this I, along with my coadjutors, intimated to the grumblers at the time such as 'J. A. B.' In regard to the honey exhibits being as 'J. A. B.' says, 'the honey exhibits were as they should be,' I will not dispute this; but wherever there was competition the prizes went to the old hands, whose specimens were certainly very far ahead of those of the few years' experience. In conclusion, bee-keepers who are willing to instruct on request, cannot be expected to go about the country bawling out for people to visit them, nor yet to make themselves prominent in the pages of any light periodical they imagine will publish their trumpetings. Then, although many people remain ignorant of bees near any apiary, there is nothing remiss on the part of the bee-keeper; for this certainly nothing of a slur should adhere to the promoters of bee shows, who can conceal these from bee-keepers within half a mile of their show grounds, and award a gold medal to the only exhibitor.—One of the Judges.

SIMPLICITY IN BEE-KEEPING.

Although not agreeing with all your correspondent, 'J. P.', says on the above subject, I have felt for a long time that the direction modern bee-keeping was taking was more a scientific than a simple and profitable one, and as a scientific occupation was getting more and more out of the reach of those that the B. B. K. Association so continually assert it is their wish to benefit, viz., the cottager, labourer, and those similarly situated.

I am living where modern bee-keeping has only lately taken root, and it is now quickly spreading, and I have had numerous inquiries from those who have lately taken up the pursuit or have been thinking of doing so; and I have repeatedly been asked how they are to get all the things which the bee-books say are necessary to good and successful management. I have been obliged to tell them not to mind much they find in these books as many of

them are no doubt useful and almost necessary to advanced bee-keepers but not to them, and seem to me to be got up and pushed by dealers, &c., as a sort of trade-making trick to keep up business.

I have constantly advised them to spend 7*d.* in *Modern Bee-keeping* book, and offered to lend them a bar-hive, or if impracticable told them to buy a Makeshift or other *cheap hive* as a pattern and make their own; this in some cases is beyond their purse or ability as regards the hive.

I have found no bee-book yet so well calculated to suit beginners in bee-keeping as *Modern Bee-keeping*, and when reading any others I can get to see (I never buy any) I am always surprised at the opening part where it generally states how simple and how easy it is for any one to realise a profit by bees; and then, like books on rabbits, pigeons, poultry, and pigs, devotes the remainder of the space to pointing out the numerous accessories and appliances requisite to be successful in the end. I think we yet want a simple and less expensive system advocating for the class I speak of.

When they have got over the past few seasons and are more acquainted with the subject through experience and the perusal of the *B. B. J.*, there is nothing to prevent (in fact, you then cannot prevent them) from adopting some of the scientific appliances, and then I think they will be more likely to be able to afford them, if they have been educated up to their use and have realised a profit from the modern system, which is all the more likely, than if they go in for expensive things they do not know how to use properly. They often fail and throw up the thing in disgust, lay all the blame on bee-keeping, whereas it is that they began at the wrong part and did not know how to use the things they purchased.

I know a young farmer in this part who has got the 'bee-fever' through reading about the subject in *Farm and Home*, and he saw some bees advertised for sale, and bought them. As the late owner had to leave his home and grounds, the purchaser was compelled to move them about sixteen or eighteen miles, he came to me for advice as to how to do it, and he succeeded in getting them home in safety. I lent him the *B. B. J.*, and there he sees all the scientific appliances advocated, and now he wants to rush in for extractor, honey ripener, wax-smelter, &c., and is surprised when I tell him either to do without or make an extractor himself; but he talks of extracting every two or three days, and is already calculating on a rich return for his money, although three months ago he thought nothing about bees and had never seen a queen or drone or the inside of a hive other than the old skep. This is the result of the teachings of *B. B. J.* and the advanced Bee Book he has purchased and studied, and he has already invested in wood for hives more money than I ever spent in hives or appliances this last five years. I am afraid he will see the balance on the wrong side by-and-by. I make three or four bar-hives pay me very well, I subscribe to the *B. B. J.*, have a copy of the *Hand-book*, once bought a Makeshift hive for a friend, who did not pay for it, and so I got it back and made it up into a good hive for my own use. This is the only one I have that is not my own make throughout. The plan I adopt is to buy nothing that I can make, and to do without most of the things that are said to be necessary. I made a Little Wonder extractor, and buy only bars, sections, foundations, excluder zinc, and honey jars.—J. I. S. *Somerton, Somerset.*

SECTIONS AT EIGHT ANGLES TO THE FRAMES.

Before the next issue of *B. B. J.* the question as to the standard size of sections will have been decided, and I hope in favour of the size advised by the Sub-Committee.

I am surprised that among all that has appeared in your pages as to the arrangement of sections and section-frames for use in the body of the hive, one very simple and inexpensive one has (I think) not been alluded to. It was shown me by Mr. Hart, of Longstock.

The plan is to place the sections *at right angles to the frames* and *on their sides*, thus showing the quarter-inch openings *perpendicular*, thus avoiding the use of that abomination of all bees (of my acquaintance), the 'excluder zinc.' In this way two rows of seven 4¼ and 4½ sections, *one on the other*, are placed at the back (or side) of the hive; a strip of deal 9 × 4½ on each side, planed rather thinner at the lower acts as a wedge, and keeps all close *without any frame*. The dividers are strips of tin 20 × 3½ (thus a 20 × 14 sheet cuts four), bent so as to clasp tightly each *pair of sections* from top to bottom. By cutting four nicks ½ inch deep in the part of the tin at the bottom, and turning the pieces down, 'bee-space' is left below the sections.

It is difficult to describe this on paper, so the best plan would be to send to Messrs. E. M. Hart & Co. for a sample set (the price, *I think*, is 2*s.*, or for three stamps I would send any one a small model). If desired, these fourteen sections, when half-finished, can be laid *sideways* on the top of the hive (tied round with string) for completion.

I did not know of this plan in time to test it last season, but heard it well spoken of, and I was told it was largely adopted by Mr. Bellairs. It certainly seems a far better and simpler plan than the section frames, and might be adopted with any shaped 1-lb. sections.—W. E. Burkitt, *Buttermere Rectory, Hungerford, Feb. 5.*

SMOKER SPRINGS.

During last season I heard a great many bee-keepers complain of their smoker springs breaking, several after being used only a few times, and having been put to some trouble myself from the same cause, I was led to think that to be perfection a spiral spring should be used. I accidentally found a chair or a sofa spring, and cutting it in half with a file, I was in possession of two cone-shaped spiral springs, about three inches high each. I fixed the wide end of one of these on the bottom board of the smoker-bellows with four small wire staples; then slightly forcing the two boards of the bellows together, I refixed the leather, and, on trying it, found I had a spring that was powerful, simple, easily fitted, and, I should imagine from its shape, unbreakable, and only costing about three half-pence. They can be obtained at any ironmonger's. The bellows of most smokers are not wide enough to permit their being grasped firmly in one hand, I therefore fitted a new bellows to mine, which seems an improvement. I cut two pieces of pine, 6½ × 4½ × ⅜ in., and bored the blast-hole ⅝ in. to the left of the centre; this brings the tin guard on the left edge of the bellows, thus giving plenty of room on the right. —H. Fewtrell, *Cumberland Road, Reading.*

BLIGH COMPETITION.

In the Report of the British Bee-keepers' Association I received this morning, allusion is made to this subject, and members of the Association are invited to offer suggestions for improving and simplifying the rules under which the competition is now carried on in the event of its being repeated another season. As stated by the Committee, a similar request was made a year ago; but though several suggestions were then offered, it does not appear that they were acted upon. One in particular, which several of your correspondents put forth in the columns of your *Journal*, was to the effect that before being confirmed, the new rules should be published and submitted to the criticism of practical bee-keepers. Had this been done, I cannot think that so absurd a rule as No. VI., with its still more absurd interpretation (vide

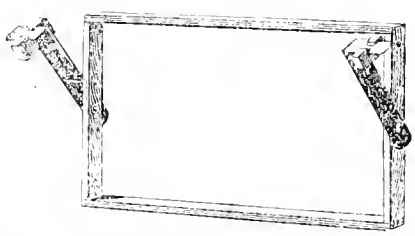
B. B. J. for December and January last) would ever have been sanctioned, the effect of it being, as I need hardly point out to any one who understands the matter, utterly to discourage all honest competition or practical bee-keeping in any shape. That this is the general opinion is shown by the fact alluded to in the Report, that so large a number of those who paid their entrance-fees did not continue the competition, notwithstanding the exceptionally fine season of last summer.

The Committee express a hope that those who are still in the lists 'will hold on to the finish.' May I be allowed to express *my* hope and trust that if they do, no bee-keeper will attach the slightest importance to the results, which, whatever they may be, must be utterly fallacious and misleading?

I write strongly, for I am, I confess, disappointed at the failure of a scheme from which I had hoped much good might arise, and which I endeavoured to promote by donations and entrance-fees, but which has been utterly marred and spoiled in the carrying out.—GEORGE SHIPTON.

REVERSIBLE FRAMES.

In accordance with intimation given by me on page 50, I herewith send a wood-cut showing the position of the metal ends, and how they can be turned round so as to support the frame either from top or bottom, and thus serve as a simple means of reversing.



As before said this contrivance can be adapted to any kind of frame, and is easily fixed even on hives in use, no alteration of the hive being at all necessary.—ALFRED NEIGHBOUR.

[We have received a communication from Messrs. Mason and Buchan stating that Mr. Neighbour's reversible frame is 'exactly the same principle as their patent:' we do not see the similarity. Mr. Neighbour's letter refers to the position of the metal ends, theirs to the reversibility of the frames.]

Echoes from the Hives.

Worthing, Baystead.—Bees in this locality are on the alert; three stocks in my apiary were busily devouring barley-sugar placed over the crown-board exit in inverted finger-glasses, and had come to an end of the stores. Flights have been frequent during last month.—E. W.

North Leicestershire.—On Nov. 14th, 1881, the bees went into winter quarters, and remained perfectly quiet till Dec. 5th, when they had a general turn-out, and settled down again until Jan. 5th. At this date some of the stocks maintained their quietude, and showed unpleasant signs of distress, when the sudden rise of temperature on Jan. 27th set them at liberty. Stocks are generally in good condition, and some few bees have been buzzing about the aconites to-day (7th inst.).—E. B.

Blackheath, Kent, Feb. 6.—My bees seem to be very strong and in good condition, and are getting through the winter very well. Some few have died during the late frosts. These I have removed; the rest are in first-rate condition, and have been lately flying about during the hours of sunshine, looking none the worse for their long rest. Last Sunday (Feb. 1st) I caught a queen wasp, which had evidently felt the influence of the warm genial sunshine, and was therefore looking out for a place to start a nest in. I think this is the first wasp that has been seen in this neighbourhood this year.—HERBERT S. SAUNDERS.

Rottingdean, Feb. 7.—I am pleased to say stocks are progressing favourably, though so far none but very superficial examinations have been made. We have experienced a very moderate winter, though not so mild as the last.—S. SIMMINS.

Oxford, February 7th.—Bees are now beginning to move in many apiaries, being invited hence by the mild weather, and appear perfectly healthy and ready for good work during the coming season. The winter cannot be said to have been heavy, though we have had a little frost, and bees, on the whole, seem to have suffered little; notwithstanding one case of dysentery took place in our midst. Very little winter feeding has been done, as, generally speaking, it is not believed in here, but we are now beginning to stimulate them. The weather is very stormy, and the ground sodden, many bees alighting on it, and dying thereby.—E. F. H.

Bath, February 9th.—For the first time this season I see pollen being brought in in small pellets, orange and dirty white. There are a few crocus out to account for the orange-coloured pollen, but where does the white come from? One of my hives receives occasional visits from robber bees, who do not, however, appear to effect an entrance. But what causes robbing at this season? My hive, when put up for the winter, was strong in number and in food.—M. H. FRESHFORD, *Bath.*

Haydon Hill, Bushey, Herts, February 11th.—In your lists of spring flowers for bees I do not think the great value of the snowdrop (*Galanthus nivalis*) is sufficiently appreciated. Yesterday, February 10th, being a warm sunny day the bees were out in great numbers and very busy working on the snowdrops, of which I have a large quantity in bloom, and their legs were covered with large balls of deep orange pollen. For two years I have noticed how much they were visited by the bees, and even when the crocus are out which in this heavy clay soil is late, the few remaining snowdrops are preferred. —L. ATTENBOROUGH.

Newtownards, Ireland, Feb. 5.—Winter is rapidly passing away, and on the whole it has been very mild, with a moderate rainfall, and in severity cannot be compared to that of last year for rain and storms. Bees have had frequent flights to cleanse themselves and renew their health. The bees in my own apiary are wintering nicely, having plenty of good, healthy, sealed stores. I know of a colony almost died out with dysentery, the owner of which on examination took away a quart of dead bees, and the combs and hive were in a sad state of dampness, and traces of the disease caused by wintering on unsealed stores given too late in autumn. In another apiary a colony has commenced to breed, and on examination eggs and young grubs were visible.—A NEWTOWNARDS BEE-KEEPER.

NOTICES TO CORRESPONDENTS & INQUIRERS.

AN INQUIRER.—*Section Honey or Extracting.*—It would be more profitable to get honey by extracting than by sections, if the instructions given in previous numbers of the *Journal* be carefully attended to.

E. P.—*Moving Bees.*—Please refer to our issue of Feb. 15, where instructions as to moving bees short distances are fully given.

BEESWING.—The sugar as per sample will do very well for the purpose. The cloth will also do, though a more even surface is preferable. If tin is used, have a plate 3 inches wide and as long as the feeder, placing

it close to the same. Of course it should be understood that if covered too closely by quilting material no moisture will be produced.

M. Halliwell.—Mr. Simmins's first idea was to arrange the dummy with glass slides, but on considering the expense, and liability of a breakage, and other inconveniences, he decided to use only wood. The state of stores is readily ascertained after a little practice by raising the dummy slightly by the hand. The proposed arrangement, moreover, will give no moisture, as there will not be sufficient variation in the internal atmosphere of the hive to cause it, considering the position of feeder.

H. Jeanes.—*Practical Bee-keeping.—Excluder Zinc.*—Mr. A. Sharp's reply is:—'I have entirely abandoned the use of queen excluder, considering it an unnecessary expense and a great annoyance to the bees. Not a bit of it was used in my apiary during the past season, and the only section found to contain brood was one that was filled with drone-comb. If a stock is built up early, so as to be in a position to store the first flow of honey that comes in supers, the sections filled with worker comb-foundation, and so arranged that there is a quarter of an inch between the bottom of them and the top of the bars, there is little fear of the queen ascending. At least, such is my experience. When extracting I often find combs filled with honey from top to bottom entirely free from brood. Combs that contain brood are not extracted until the brood is sealed over, in which case extracting appears to have no injurious effects. I do not therefore see any need to confine the queen to a limited number of frames.'

Wm. Ditty.—*Given-wired-Foundation* is an American production and is largely used in that country, but of late the practice of wiring the *frames*, and pressing the ordinary foundation on the wires, has come into vogue. The 'Given-foundation' is inserted in the top-bar, with the wires hanging vertical, *i.e.*, parallel to the end bars, but not touching them by a $\frac{1}{4}$ of an inch. Neither must it touch the bottom bar by $\frac{1}{2}$ or $\frac{1}{4}$ inch. Read again our directions in 'Useful Hints,' and you will find that the silvered, or tinned wire—which *crosses* the wires in the foundation—is to be passed through holes in the *ends* of the frame, 2 or 3 inches from the bottom-bar. These holes, 2 inches each end, must be near to each other, and a doubled piece of wire passed through one end is then drawn up tight, through the holes in the other end, and twisted, when it holds the foundation in a vertical, or perpendicular position to the top and bottom bars of the frames, and ensures straight and vertical combs being built *within* the frames. Given is the inventor of this foundation, hence its name. The price in England is 2*s.* 10*d.* or 3*s.* per lb., according to the quantity taken and we believe several dealers in bee appliances import it, we know that Messrs. Neighbour do. The wire, imbedded in the foundation—a wire to every inch—is of the finest description, not thicker than horse-hair, and is easily cut, with ordinary scissors, to fit the frames. We consider it quite as cheap as thick unwired foundation at 1*s.* 10*d.* or 2*s.* per lb., since the *septum* being very thin, and the cells flat-bottomed, it goes much further, and there is no danger of combs—even if quite new—breaking out in the extractor. We speak from experience and not from theory, but we say try it first, on a small scale, and we feel sure you will continue the use of it afterwards. The Van Deusen wired foundation is an equally effective make.

Dordor.—*Treatment of Bees.*—The bees may be driven very well during warm weather in April, but transferring to frame-hives is an operation which requires an expert. We advise you to take the swarms, either naturally or artificially, at the proper time, and three weeks afterwards to transfer the bees, brood and combs from the old hives to new ones putting together two colonies. You may take super honey from the swarms if the season prove a good one. See *Modern Bee-keeping* under 'Transferring.'

G. R. *Diss.—Mouldy Pollen in Spare Combs.*—You did quite right. The combs are quite suitable to give to a swarm, and if the pollen is not to their liking the bees will very soon clear it out. 2. *Unsealed Food Fermented.* We should not give any doubtful food to bees in spring, as it may lead to dysentery. When the season is more advanced and the weather warm, you may give the combs to a strong lot to be cleaned out, but we should advise you to extract all the liquid food first, and if the quantity is small throw it away. 3. *Feeding.*—At this time of year candy is the best food. Do not think of putting a dry sugar feeder between the combs. When you do use it, in another month's time, put it outside the clustered bees, in the position of a dummy. 4. *Wired Foundation.*—We have always found the 'Given-wired-foundation' worked out as quickly and as readily as any other kind, and when inserted as recommended in 'Useful Hints,' in our last issue, there has been no curling or warping, and, best of all, no sagging or falling is possible. Our experience of the heavy foundation, with thick *septum*, is that with large colonies and hot weather it is impossible to prevent the whole sheets from falling.

A. Banffshire Bee-keeper.—*Moving Hives.*—See 'Useful Hints' under 'Moving Hives' in our last issue. If the weather has been so fine as to induce the bees to fly freely there is danger of loss. After this month by far the safest plan is to move the hives a distance of one mile at least, and after the lapse of three or four weeks to again remove them to their permanent site.

A. Fish.—1. *Straw-packed Walls.*—Your plan will answer, but is complicated. Cork-dust is quite as good or better than straw as a non-conductor of heat, and is cleaner and less likely to harbour vermin or become mouldy. 2. *Saw-cuts in Frames.*—This is the simplest plan of fixing foundation, but the clefts should be filled with putty on the upper side of the top bars to prevent harbouring wax-moth grubs. 3. *Wide-shouldered Frames.*—Yes, we certainly recommend this form in preference to the plain top bar with distance pins or staples. The invention of metal ends offers the most simple means of widening the frames, and is preferable to wooden shoulders. 4. *Size of Sections.*—We should advise you to adopt $4\frac{1}{4} \times 4\frac{1}{4}$. 5. *Foundation.*—The cause of your sheets swaying to one side is either that your hives do not stand level or that you gave more sheets than the bees could cover on both sides. If a sheet of foundation has bees on only one side, their weight will of course bring it out of perpendicular. A better plan than that which you suggest was mentioned in our columns some months ago, viz., a few threads strained through holes in the ends of the frames on each side of the sheets. 6. A short account of results, especially if accompanied by such details as would explain them, would possibly be interesting.

A. B. C.—*Position of Hives.*—There should be a distance of three feet between each hive; and between rows of hives at least six feet. It is desirable to have a path behind the hives, so that when examining them, as they should be from the back, the bees passing in and out of the hives may be disturbed as little as possible.

Co. Limerick.—*Floor-boards.*—It is not necessary that floor-boards should be moveable. In Woodbury hives it is desirable to have them loose for facility in cleaning them. In larger hives the same purpose may be

effected by shifting the combs from one part to the other.

L. E. R.—*Merits of Honey as a Comestible.*—We know no pamphlet on honey which would suit your purpose better than *Honey as Food* by F. R. Cheshire. Information as to price per thousand may be obtained from Mr. Huckle.

South Glos.—*Sugar for Bee-feeding.*—We should give the preference to No. 2 for dry sugar feeding. No. 3 tastes of molasses. Messrs. Neighbour's advertisement will give you the information you seek as to the price of Duncan's Pearl Sugar.

J. J. N. C.—1. Double shoulders are recommended. 2. Your drawing is correct, except that 1⅛ is rather bare, 1⅞ is correct; but 1½ is better than 1⅞. The shape is a question of convenience. 3. Yes; but putty is better than wax for filling up and costs less. 4. *Bottom Rail.*—It is quite immaterial. Some use no bottom rail, but it tends to keep the frame square.

Richard White.—*Packing Sections for Travelling.*—Do not make a large box in which to pack sections: let the packages be easily handled; 28 lbs. is a good weight. The main point is to prevent jars and jerks. Mr. Baldwin exhibited some time ago a spring crate which might be dropped from a height without damaging the sections. Mr. Abbott recommended indiarubber balls under the crates. We have found thick pads of hay in canvas effective, and they have the merit of being inexpensive.

Thula.—1. *Queen-raising.*—You had better raise your queens in the parent hive; queens raised in a strong stock are more vigorous than if raised in a weak one. 2.—Mr. Simmins' plan is well spoken of by those who having tried it, and its simplicity recommends it. 3.—The sample of sugar forwarded is better for making syrup than for dry sugar feeding. 4. *Changing hives for dry ones.*—At the beginning of April, or earlier, if any signs of dysentery should appear. 5. The index for 1884 volume was published, as usual, at the end of the year, with title, &c.

G. R.—*Position of Hives.*—Your hives will stand much better in the garden than in the field, where they would get very little sun, and would be exposed to the north and east winds. It is far better to place them in the garden, with a flight-hole through the wall, than in the field. But why not let them stand in the garden at 'B,' and face them south? This would be your best plan. Remember that bees are 'sun-worshippers.'

E. McNally.—*Bees as Fertilisers of Flowers.*—Conclusive evidence to prove that bees are more or less essential to the due fertilisation (and, therefore, not injurious) of many wild and exotic flowers may be found by consulting Lubbock's *British Wild Flowers in relation to Insects*, Darwin's *Fertilisation of Orchids*, &c.

Veritas, Virtuoso, A Sussex Cottage Bee-keeper, are requested to favour us with their names.

Report of Hertfordshire B.K.A. in our next.

The reports of the various Associations have obliged us to postpone several communications to our next issue.

Mr. Cheshire informs us that he has been enabled to make a discovery as to the nature of dysentery which is extremely curious and interesting, a full account of which will be given hereafter. We note that Mr. Cheshire has been made an honorary member of the North Eastern Bee-keepers' Association, Syracuse, U.S., in consequence of his researches into the nature of *bacillus alvei*, or foul brood.

Trade Catalogue.—Received from Messrs. Thomas B. Blow and Ellis, Welwyn, Herts, their *Illustrated Catalogue of Bee-keepers' Supplies*, pp 1–60.

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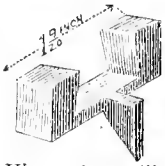

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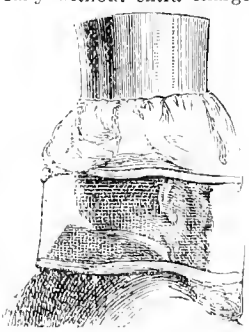

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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

[No. 165. VOL. XIII.] MARCH 1, 1885. [PUBLISHED FORTNIGHTLY.]

Editorial, Notices, &c.

SIZE OF SECTIONS.

About a year ago a letter appeared in our columns signed 'R. E. C.,' adverting to the perplexing variety of sizes of sections, and stating that a well-known manufacturer of bee-appliances had advertised no less than seven different sizes. Our correspondent called attention to the benefit the B. B. K. A. had achieved for bee-keepers in fixing a standard frame, and intimated the desirability of their obviating the unnecessary trouble that bee-keepers were subject to by the adoption of some standard dimensions for 1-lb. and 2-lb. sections. Previous to the appearance of this letter, the Irish Bee-Keepers' Association had been troubled by the same perplexity; and at their annual meeting it had been decided that sections to be recognised as 1-lb. sections at the honey shows held by the Association must in future measure either $4\frac{1}{2} \times 4$ or $4\frac{1}{4} \times 4\frac{1}{4}$; and those of other dimensions would not be eligible for competition as 1-lb. sections.

An appeal having been made to the Committee of the B.B.K.A. to consider the desirability of fixing the size of the standard sections, a sub-committee was appointed by that body to consider this matter, who, after much careful and painstaking study of the question, at the meeting of the Committee, held on November 19th, 1884, presented an amended prize list for the bee-department of the Royal Agricultural Show to be held in Preston during this year, and recommended 'That, in the classes for 1-lb. and 2-lb. sections of comb-honey, the size of the sections should be defined, viz., for 2-lb. sections $6\frac{1}{4} \times 5\frac{1}{4} \times 2$, and for 1-lb. sections $4\frac{1}{4} \times 4\frac{1}{4} \times 2$.' These sizes have attained the greatest popularity in America ever since their introduction in the season of 1879; and in this country they have been adopted by a great majority of bee-keepers, who considered them the most suitable for the respective weights. This recommendation was accepted, though not unanimously, by the General Committee. But as many bee-keepers had introduced other sizes into their apiaries, objections were raised to the dimensions accepted, and a warm discussion took place in our columns. The various County Associations discussed the subject at their meetings and instructed their representatives to communicate their views to the Central Association. The Hants Association stated, in an addendum to their Annual Report, that while an uniformity in sizes of sections was desirable for the purposes of judging, 'they considered the ultimate advantage of diversity of size and shape in offering to the consumer a variety of sizes and prices is of greater moment.' The Herts Association, also having considered the proposal of the Committee, passed a resolution to the effect that 'no standard section should be at present adopted by the British Bee-keepers' Association, and that they be requested to consider the sizes $4\frac{1}{4} \times 4\frac{1}{4}$, and $8\frac{1}{2} \times 4\frac{1}{4}$, with a view to their adoption as standard sections at some future date.'

At the Annual General Meeting of the B.B.K.A., held on Feb. 11, it was evident that the action of the Committee with regard to the Preston Show was premature, and that bee-keepers throughout the country were not desirous of accepting a standard size of sections for the present. It was therefore determined that the consideration of the matter should be adjourned.

We believe that a correspondence between the Secretary of the B.B.K.A. and Mr. H. Jenkins, Secretary of the Royal Agricultural Society, with a view to rescind the resolutions relating to the Preston Show, has taken place. But we fear that the bye-laws of the R.A.S. will prevent any alteration being now made in the schedule of prizes for the Preston Show.

SECTIONS, PAST, PRESENT, AND FUTURE.

When we compare the supers exhibited at the first Crystal Palace Show, in 1874, with the contents of every show-tent in 1884, we cannot fail to be struck with the change which has taken place in ten years. Then bee-keepers went in for monster supers, and each tried to produce something bigger than his neighbour. That was all very well when honey used to be sold direct from the producer to the consumer, who, when he had got his super, could cut out comb as he required, and did not mind if the honey ran. Then bee-keeping was in the hands either of cottagers, who supplied a small local demand, or of gentlemen who were pleased to obtain a prize for their honey, quite regardless of whether it was sold. Now, however, when bee-keeping has passed, or is rapidly passing, from being a hobby, and is taking its place as an industry, the commercial element asserts itself more

and more every day, and will not be denied. Therefore, the question of producing honey in its most saleable form is one of the greatest importance. One of the earliest, if not the earliest, attempts in this direction was the introduction by Mr. Abbott of a super in which the wood could easily be divided with a knife between the combs, so that the whole could compete for weight and yet could be divided for sale. Then came the American sections, in four pieces, soon to be superseded by the present one-piece folding sections, which seem to be almost incapable of improvement in principle, although sizes and shapes may be modified. For commercial purposes we must consider the best means of obtaining the honey, how it may be best sent to the market, and the size and shape most attractive to the public, who must be the ultimate buyers. As to the first, no doubt a far larger harvest can be obtained in 2-lb. sections, and the quality will be finer, but the difficulty of transit is great; far greater care in handling is required; and although a few people will purchase a 2-lb. section, those who will buy a smaller size are as twenty to one. Sections of 1 lb., although giving the bees more work, weight for weight, will travel more safely and sell more readily. This size has been sold recently in grocers' shops at 1s. each, but naturally the producer does not get anything like that price, for reasons which have been pointed out in our columns. Now, every one who walks through the streets of our great cities and towns and notices shop-windows must be aware that shilling and sixpenny goods are those which sell best, and are 'pushed' by shopkeepers. Why cannot a smaller—a sixpenny section be produced? The ordinary $4\frac{1}{4} \times 4\frac{1}{4} \times 2$, containing theoretically $4 \times 4 \times 1\frac{1}{2}$ of solid comb, weighs 1 lb.; a section $4\frac{1}{4} \times 3\frac{1}{4}$ (a size familiar to photographers as 'quarter-plate') $\times 1\frac{1}{2}$, or brood-comb frame thickness, would contain theoretically $4 \times 3 \times 1$ of comb, or exactly half the quantity, and might supply a sixpenny section. No doubt this suggestion will meet with objections, but so would one of a shilling section in 1874; we venture, however, to think that before many seasons are passed a sixpenny or half-pound section will be a recognised size. As the shape of sections will possibly be again brought before the notice of our readers, and also the points to be aimed at to secure the verdict of the judges, we will not at present touch upon those two questions.

USEFUL HINTS.

Owing to the mild weather experienced during last month, the bees have been stimulated to frequent flights, and, in many cases, to unusual activity. In populous colonies, breeding is now carried on freely; and on the 11th and 12th of last month, in our own apiary, pollen was carried in to a considerable extent, both from natural and artificial sources. It is certainly a pleasant sight to the apiarist to behold his bees awakening up to life after their long winter's sleep, thronging around the entrances with merry hum, covering the catkins of the nut-bushes, the bright yellow bloom of the furze and aconites, and the snowdrops and crocuses, wherever they are to be found. But let not these inducements to action lead to undue activity in the way of manipulation. *Leave the bees alone—Let well alone,*—must still be our motto wherever food and bees are plentiful, and the latter flourishing. We know how difficult it is for a beginner to abstain, but we have known hundreds of colonies destroyed by over-manipulation, or unnecessarily pulling them about, at this early season. After a few warm days, come frost, and perhaps snow, or cutting, cold, blighting winds, lasting, perhaps, for weeks, and the poor disturbed, aroused bees—their brood-nest broken up by outside frames being stuck into its very centre, under the notion of spreading brood—come to grief, and their brood chilled and destroyed, too often affording a well-prepared seed-bed for the reception of *bacillus alvei*, or the germs of foul brood.

Food.—Elms, poplars, willows, peaches, nectarines, apricots, and the early pears and plums, during the present month will afford in fine weather a plentiful supply of pollen, but not much honey. The demands upon the stores will now be heavy, and, where requisite, syrup, of about the consistency of honey, may be given, by a bottle-feeder, to colonies which are short of stores, and are breeding freely. Syrup of the specific gravity of 1·350 (which is the specific gravity of average honey) may be made by dissolving 7 lbs. of Duncan's Pearl Sugar in 3 lbs. of water, slightly boiled, with the addition of salicylic acid, tartaric acid, or vinegar, and salt, according to the ordinary recipe. Than this there is no better food for bees, not even their own honey. Give the syrup warm, and always feed at night, making the quantity depend upon the strength and needs of the colony. These remarks apply more particularly to the latter part of the month, and to those colonies short of stores. It is not advisable to commence stimulation through feeding by driblets at present. From six to eight weeks are required to bring up a colony to the maximum of population, to enable it to take full advantage of an influx of honey, which rarely occurs before the end of May or the beginning of June. Happy apiarians if we get it then! In hives where the bees do not fully occupy the outside combs on either side of the brood-nest, a few cells in these combs may be unsealed occasionally with a sharp knife. In warm days, the bees will remove the honey from these cells and place it around the brood in the centre frames for use. In cold weather they will neglect it entirely, so that no undue stimulation will be caused. Later on, cells in the centre frames, over the brood, may be treated similarly to advantage, without moving frames.

Quilts.—Towards the middle or end of the month, when breeding is well commenced, we consider the American system of using enamel cloth upon the frames of decided advantage. The winter quilts are removed; the enamel cloth, already cut to fit the top of the hive, takes their place, smooth side downwards, and the removed quilts, with a weight upon them, are placed over it. There is no longer any upward ventilation, and the condensed moisture being retained within the hive, is of great service to the bees, and prevents much loss of bee-

life from foraging journeys in search of water for the brood. Our practice is to cut out of the enamel cloth a circular central piece, corresponding with the inner circumference of the feeding-stage. The feeder is then placed in position, and remains ready for use. When the feeder is not required, the removed piece takes its place. The enamel cloth remains in use until swarming or supering time arrives.

Queenless Colonies.—The loss of a queen may generally be discovered on the early cleansing flights of the bees, by the incessant agitation at the entrance of the hive, which is continued long after other colonies have quietly settled down and gone to rest. The dead and shrivelled queen may often be found on the ground beneath the entrance. Such hives should be examined on the first suitable opportunity, and the loss verified, when the bees, on their own combs, should be united to a colony having a fertile queen, by quietly inserting them on the outsides of such colony towards evening, with as little disturbance as possible, closing the hive, injecting a moderate quantity of smoke, and feeding with warm syrup, from a bottle-feeder.

Weak Colonies.—If possessed of a prolific queen, such, under favourable circumstances, may be quickly built up into strong colonies. They should be confined by division-boards, to as many combs—containing some sealed food—as they can fairly cover, and additional ones must be supplied, outside the brood-nest, when required, a few honey-cells being occasionally unsealed, but the *brood-nest* must never be opened or disturbed. By treating thus a colony, which, in early spring, covered one Standard frame only, we increased it to one of the most flourishing and populous in our apiary. Mr. Doolittle, a skilled American apiarist, relates a case in which a queen, with eighty-one bees only, on the arrival of warm weather, increased her colony so rapidly as to give in the autumn a surplus of 5 lbs. in sections, and went into winter quarters in splendid condition. Such colonies must not be *stimulated* until settled warm weather has set in. The same rules apply to '*Spring Dwindling*.' The addition of a brood-comb, later in the season, when the bees are well able to cover it, will assist materially.

Deserting Colonies, often called 'hunger swarms,' are colonies which, from want of food, or from a dislike to their hive, desert in a body, and, after the manner of a swarm, cluster upon a branch, or elsewhere. Such should be placed upon fresh and sweet combs, in a new hive, confined to a small space, and, failing sealed stores, should be syrup fed until the fecundity of the queen is proved. A failure in this point sometimes causes the desertion, in which case union with another colony is the only remedy.

Dysentery.—Where hives are foul from dysentery it will be best to transfer frames, combs, and bees, to a clean dry hive. If too cold to operate out of doors transfer in a moderately warm room or outhouse. By placing strips of wood under the ends of top-bars, five or six frames, containing brood-nest and bees, may be removed, without separation, to the new hive; give a clean floor-board, cover up warmly, and feed with warm syrup. Afterwards disturb as little as possible.

Birds.—The blue-tit may be easily caught in traps baited with linseed. Shoot sparrows. Both are very destructive to bees at this season, and especially when breeding.

Miscellaneous.—Still continue to clean floor-boards. Supply water in shallow troughs—filled with pebbles, placed in a sunny sheltered spot, near the hives, sprinkling over it occasionally a handful of salt when refilling. Don't forget to provide hives, sections, supers, &c. Keep near the apiary a pail of water, and a garden-syringe, with which to destroy queen-wasps. By such means we destroyed, last spring, sixty-three such queens, and obtained a number from village boys by paying a penny each for them. The present month is a good time to purchase bees, either from cottagers, in skeps, for obtaining early swarms, or in frame-hives. Beware of robbers—the pilfering of weak colonies by their strong neighbours. It is said that an onion, rubbed on the alighting-board and around the entrance, will deter robbers. The only cure, in persistent robbery, is the removal of the robbed colony to a new stand or location.

Marriage.—On the 19th of February, at the Friends' Meeting House, St. Martin's Lane, Alfred Neighbour, of 96 Alexandra Road, South Hampstead, and 149 Regent Street, W., to Hannah Bromley, of 209 Brixton Road, widow of Johnson Bromley.

We desire to congratulate our friend and correspondent on the above event, and to wish the bride and bridegroom every happiness, not only during their 'Honeymoon,' but for many Honey seasons in the future.

Death of a Bee-keeper.—It is with deep regret that we announce the death of Mr. James Kennedy, of Comber, Ireland. He was a frequent contributor to our columns under the *nom de plume* of 'Paddy.' Mr. Kennedy acted as the district secretary for Comber in behalf of the North-east of Ireland B. K. A. This Association has thereby lost one of its best members and warmest supporters.

THE CULTIVATION AND PROPAGATION OF HONEY AND POLLEN-SECRETING PLANTS.

(*Continued from p. 40.*)

Marjoram knotted (*Origanum marjorana*). — This Marjoram is a native of Portugal, being of tender constitution it does not stand our winters in the open ground, therefore it should be treated as an annual. Sow the seed on a south border or any warm position, the end of March or beginning of April, in drills nine inches apart, thinning out the plants when about two or three inches high to six inches apart. The seedlings before thinning should be watered or the operation may be done after rain, which is preferable: carefully lift those that are not to remain and transplant in rows, as recommended for sowing. If a pinch of seed be sown in gentle heat in March and transplanted when large enough, they will flower a few weeks earlier than those sown in the open. The seed seldom ripens in this country in flower from June till August.

Marjoram Pot (*O. onites*) is a perennial native of Sicily, and should be propagated by division of the

roots in March and planted one foot apart; a dry, light soil and a sunny position suit these Marjorams best. In flower from July to October.

Meadow-sweet (*Spiræa ulmaria*).—A native of Britain, and flourishes by the side of streams and on low marshy meadows; though a moisture-loving plant, it will nevertheless respond to cultivation, especially in soil of a retentive character. Its propagation is by division of the roots, in March plant eighteen to twenty inches apart. In flower from June to August.

Nigella Damasena.—An annual requiring a light soil and a warm aspect; sow the seed thinly in drills one foot apart; when the seedlings are two inches high thin out to nine inches apart; in the rows the young plants rarely succeed being transplanted. In flower from June to September.

Phacelia tenacitifolia.—The cultural treatment recommended for Borage will answer for this annual.

Rape (*Brassica napus*).—Sow in drills one foot apart at any time from March to August, the seed quickly germinates and will flower in about three weeks after sowing. In spring and midsummer the turnip-fly (*Altica nemorum*) plays havoc with the young plants; in some seasons it is a difficult matter to get a crop; dusting the young seedlings early in the morning when the dew is still on them with soot, lime, or road dust, is adopted to counteract the ravages of this small fly or (speaking more correctly) beetle.

Turnips, Cabbage, Brussels Sprouts, &c., if allowed to flower will furnish a goodly amount of bee-forage in spring.

Wallflower (*Cheiranthus cheiri*).—For early spring forage wallflower is far away the best of all bee-flowers of any yet brought to my notice, and by the employment of two or three varieties it may be had in flower from March to June. Out of several varieties I have grown the one known as 'Harbinger' is in most favour, whether the nectar is sweeter or produced in greater abundance I am unable to discover; the flowers are dark red and most delightfully scented: this variety also has the merit of being the earliest of all the many sorts of wallflowers. Three varieties I would specially recommend for succession are, 1st, Harbinger (dark red); 2nd, Tom Thumb (yellow); and 3rd, the common sort. A bed of Tom Thumb, with its bright orange blossoms, is indeed a sight not to be soon forgotten; so lavishly does it flower, that a bed seen at a distance resembles a dense carpet of gold, while its habit of growth is all that can be desired, being dwarf, bushy, and compact, the flower spikes are not liable to sway about with the wind, as is the case with those of a tall lanky growth. It is very embarrassing to bees when they are prevented from directly settling on any flower to have to hover about until the wind abates a little.

To give the best results the seed should be sown not later than the end of May. Early sowing is by far the best plan, as it gives the plants a better opportunity of getting sufficiently strong to resist severe frosts in winter and to bloom freely in the coming spring and summer. Sow thinly, and when the plants are large enough, prick out in rows six inches apart to strengthen them; finally plant out in August eighteen inches apart: plants thus treated will produce an enormous quantity of bloom, allowing the seedlings to remain too long in seed-bed compromises all prospect of the expected feast of flowers and the sweet perfume in spring.

White clover (*Trifolium repens*).—This clover is known under the names of Dutch clover, white sucklings, &c., but by whatever name it is called, it is the queen of all bee-flowers, at all events it is in this country. Its distribution in Britain is pretty general, but in districts where it is largely for seed it must verily be a bees' paradise. Cultivation, see Alsike.

Wood sage (*Teucrium scorodonium*).—I have seen this sage grow in great abundance in some parts of Scotland, where it grows luxuriantly on dry banks, hedges, &c., especially on stony soils; it is a great favourite there with the honey and other bees. I have had no experience of this herb under cultivation, but from observation and other data I believe it to be a valuable addition to our bee flora. If any reader of the *B. B. J.* should possess any seed or roots of the wood-sage, or of any reputed bee-flower, I should be glad to test them along with others I already possess; the result I hope to give in the pages of our *Journal* at the end of the season with the Editor's permission.—H. Dobbie, *Thickthorn, Norwich.*

COUNTY ASSOCIATIONS.

Reports of several of the County Associations are to hand and show the following list of members:—

Hertfordshire	404	Herefordshire	160
Kent	376	Cornwall	151
Staffordshire	355	Leicestershire	134
Buckinghamshire	339	Bedfordshire	112
Norfolk	244	Oxfordshire	103
Derbyshire	236	Huntingdonshire	91
Worcester	221	Somersetshire	82
Essex	213	Brecon	72
Hants and Isle of Wight	200	Cumberland	66
Wiltshire	184	Shropshire	55
Cheshire	183	Yorkshire list not given.	
Dorsetshire	173	Northants list not given.	

COUNTY REPRESENTATIVES

APPOINTED TO ATTEND QUARTERLY MEETINGS OF THE BRITISH BEE-KEEPERS' ASSOCIATION.

Buckinghamshire.—The Rev. E. Clay and the Rev. S. R. Wilkinson.
Cheshire.—Mr. Bush and Mr. Cotterill.
Cornwall.—Mr. Charles Kent.
Devonshire.—Rev. J. G. Dangar and Mr. W. Griffin.
Dorsetshire.—Mr. W. H. Dunman.
Essex.—Mr. F. H. Meggy and Mr. E. Durrant.
Herefordshire.—Mr. A. Watkins and the Rev. F. S. Stoke-Vaughan.
Hertfordshire.—Rev. A. Roberts and Mr. J. P. Sambels.
Huntingdonshire.—Mr. J. Linton and Mr. J. Edey.
Kent.—Rev. T. Sissons and Mr. G. Allen.
Staffordshire.—Mr. Percy Toynbee.
Somerset.—Rev. C. G. Anderson.
Wilts.—Rev. W. E. Burkitt and Mr. T. Herbert Clark.

The above list is taken from the reports and information furnished by Secretaries. It is to be regretted that the names of the representatives are omitted in a large number of the reports. We shall be glad to add others upon hearing from the Secretaries of those County Associations which are not included in the list.

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee Meeting held at 105 Jermyn Street on Wednesday, the 25th of February. Present: The Rev. H. R. Peel (in the chair), the Rev. E. Bartrum, the Hon. and Rev. H. Bligh, the Rev. F. G. Jenyns, Rev. G. Raynor, the Rev. F. S. Sclater, Capt. Bush, R.N., Capt. Campbell, W. H. Dunman, H. Jonas, G. Walker, and the Secretary.

The Minutes of the last Committee Meeting were read, confirmed, and signed. In accordance with the resolution passed at the Annual General Meeting, the Trustees

were authorised to invest the sum of 20*l.* on account of the sums received for life-members' subscriptions.

Letters were read, (1) from Col. Smyth, tending his resignation as a member of the Committee, owing to circumstances having arisen to call him away from England during a considerable portion of the ensuing year; (2) from the Royal Agricultural Society, announcing that the bye-laws of the R.A.S. did not permit of any alteration being made in the prize list in regard to the size of sections to be exhibited at the Preston Exhibition; (3) from Mr. McNally, of Glenluce, N.B., respecting the conditions upon which local societies were received in affiliation with the British Bee-keepers' Association.

An application for a series of lectures to be given in North Wales was favourably received and fully considered. The Secretary was instructed to communicate with Mr. Davies, the Hon. Secretary of the Denbighshire Association, with the view to carry out the Lectures as desired.

The proposals of the County Associations of Kent, Cornwall, and Wilts, for the disposal of the prizes of 5*l.* each gained by these Associations in the ballot which took place at the Annual General Meeting, were submitted and approved.

It was resolved that a leaflet be prepared giving simple instructions to beginners in bee-keeping. It was also resolved that no London show be held this year except in connexion with the Annual Exhibition of the British Dairy Farmers' Exhibition at Islington or some other society. On the motion of Mr. Jonas, it was resolved that the B.B.K.A. should always devote its special attention to bee-culture in the district in which the Royal Agricultural Show was held.

The following sub-committees were appointed for the ensuing year, viz.: *Finance*—Bartrum, Jonas, and Walker. *County Associations*—Peel, Sclater, Bush, Campbell, and Dunman. *Bligh Competition*—Bligh, Hooker, Martin, and Stewart. *Educational*—Bartrum, Bligh, Jenyns, and Raynor. *Exhibitions.*—Bush, Dunman, Jonas, Sclater, and Stewart. Mr. Cowan to be ex-officio member of each Sub-Committee. The next Committee Meeting was fixed for Wednesday, March 18th.

County Associations included in the ballot:—Bedfordshire, Brecknockshire, Bucks, Cornwall, Cumberland, Devonshire, Dorsetshire, Herefordshire, Hertfordshire, Huntingdonshire, Kent, Leicestershire, Norfolk, Northamptonshire, Oxfordshire, Shropshire, Somersetshire, Staffordshire, Wilts, Worcestershire.

The county of Essex was omitted from the list owing to the error of a clerk in the delivery of the Association's Reports.

HERTFORDSHIRE BEE-KEEPERS' ASSOCIATION.

The annual general meeting of the members of the Hertfordshire Bee-keepers' Association was held in the Council Chamber of the Shire Hall, Hertford, on Tuesday, Feb. 10. Mr. Percival Bosanquet presided; and amongst those present were the Rev. F. G. Jenyns, the Rev. F. H. Burnaby, the Rev. J. Lingen-Seager (hon. secretary), Messrs. R. B. Croft, A. B. Lipscomb, F. W. Silvester, H. C. Heard, H. McMullen, R. T. Andrews, G. Buller, J. Gregory, J. Huckle, J. P. Sambels, H. E. Roberts, J. Chapman, Perry, etc.

The Secretary read the minutes, and the report and balance-sheet.

From the report it appeared that lectures have been delivered by the honorary secretary at Abbot's Langley, Bishop Stortford, Buckland, Crossley Green, Frogmore, Hatfield, High Cross, Hitchin, Hoddesdon, Markyate Street, Redbourn, Sawbridgeworth, Tring, and Watford; by Mr. J. P. Sambels, at Bayford, Bengeo, Hertford, and Tewin; and at other places by the Rev. F. G. Jenyns. The Hon. Secretary made a tour during the spring months, extending over a fortnight, visiting members and other bee-keepers during the day, and delivering lectures in the evening at each place where he halted for the night. The Hon. Secretary reports that though there are still some few neighbourhoods in which no advance has been made, on the whole he was agreeably surprised to find how much interest was taken in the newer methods, and intelligence shown in adopting them amongst artisans and cottagers throughout the country.

The bee-tent has attended several horticultural and cottage garden shows. Two exhibitions of honey, wax, &c., have been held—(1) in connexion with the Hitchin Adult Schools' Summer Horticultural Show; (2) in connexion with the Moor Park Horticultural and Cottage Garden Show.

Considerable attention has been given during the year to the development of the organization of the Association by dividing the county into districts, each district containing a number of parishes, with a district secretary, local advisers being appointed for each district. The Hon. Secretary will be glad to receive suggestions for the improvement of these districts. Several of them are large, and should be subdivided, and begs that his attention may be called to any errors in regard to name, address, or parish.

The accounts show an adverse balance of 9*l.* 11*s.* 5½*d.*, which is due to members not having paid their subscriptions.

The report and the balance-sheet were adopted.

The President and the Vice-presidents having been re-elected, the following were elected as the Committee for the ensuing year:—Western side of the Midland Railway—The Rev. Astley Roberts, the Rev. F. H. Hodgson, Mr. A. B. Lipscomb, Mr. H. C. Finch, and Mr. F. W. Silvester; eastern side of the Midland Railway,—Mr. R. B. Croft, Mr. W. M. Allfrey, the Rev. F. G. Jenyns, Mr. H. C. Heard, and J. P. Sambels. Mr. G. N. Martin, the Rev. G. Finch, Miss Gayton, and the Rev. F. H. Burnaby, were also added to the Committee.

The J. Rev. Lingen-Seager was re-elected as Hon. Secretary, and the Rev. Astley Roberts and Mr. J. P. Sambels were unanimously re-elected as representatives to attend the quarterly meetings of the British Bee-keepers' Association.

It was agreed that the arrangements for the visits of the experts should be made by the Hon. Secretary, and the matter of Shows was left to be fixed by the Committee.

The Hon. Secretary next invited those present to consider a proposal of the British Bee-keepers' Association to establish standard sections, and said that personally he was of opinion if any standard was fixed it should not be done all at once.

After the matter had been fully discussed, the following resolution was proposed and unanimously adopted:—'That no standard section be at present adopted by the British Bee-keepers' Association, and that they be requested to consider the sizes $4\frac{1}{4} \times 4\frac{1}{4}$ and $8\frac{1}{2} \times 4\frac{1}{4}$ with a view to their adoption as standard sections at some future date.'

A hearty vote of thanks was given to Mr. Bosanquet for presiding, and the chairman having briefly replied, the meeting separated.

Quarterly Conference of the Hertford District of the H.B.K.A.

The fact of the annual meeting being held at Hertford on the afternoon of February 10th was taken advantage of by Mr. Andrews, the district secretary, to call his members together a few days earlier than originally intended for their second quarterly conference. There

was a very large attendance, amongst whom the cottager class largely predominated.

The Rev. J. Lingen-Seager was voted to the chair: and amongst those present were Mr. R. T. Andrews, district secretary, Dr. Shelley, Messrs. Cozens, J. Robinson, G. Turner, J. P. Sambels, H. McMullen, O. Rose, J. Bootes, J. H. Austin, Storey, Benson, Doddridge, Bird, Aldridge, Ashwood, Surridge, Chapelow, Brown, Halley, H. E. Roberts, Clarke, Jauncey, Southeren, &c., &c.

Mr. R. T. Andrews explained the objects of the conferences were to make the work of the Herts B.K.A. better known, especially amongst the cottager class of bee-keepers; and also to enable the inexperienced to profit by the better practice of the more successful bee-keepers present, and hoped all would avail themselves freely of the opportunity of questioning those present on any point on which they required advice or assistance.

The Chairman explained the organization of the Herts B.K.A., the county being divided into twenty-six districts, each with its district secretary and local advisers, and having spoken in eulogistic terms of Mr. Andrews' zeal and ability, went on to point out where he hoped the members of the Association would lend a helping hand in the future: 1st, by getting in subscriptions. He thought many members could be of great service if they would look up subscriptions, especially from those members who were in arrears. 2nd, by letting him know who amongst the members did not require the services of the expert during his spring visit. It was very annoying to the expert after travelling ten miles, as he did sometimes, to see a member, and then find his services were not not required.

Mr. Sambels hoped much from their improved organization, which was now in real working order. The district secretaries and local advisers should know in their several districts who required the services of the expert and who did not. The experts collected a large number of subscriptions, and that was a very strong argument in favour of his calling on all the members.

The Chairman replied it did not pay to spend 5*s.* to collect a 1*s.* subscription.

Mr. Andrews said he believed there were many present who did not know the advantages of joining the Association, and went on to enumerate them, and asked those present who were not members to join.

A person in the room said he was a cottager, and neither he nor any of his neighbours knew until last year how to keep bees.

Mr. Bird said he was a cottager, and as he knew the good work done by the Association, he wished to be entered as a member, and placed his 5*s.* subscription on the table (applause).

Mr. Turner suggested that one or two members in each district should be appointed as collectors.

Mr. J. Robinson suggested the use of reply post-cards.

Mr. Turner believed a personal visit would be most successful.

Mr. Andrews had used eighty reply post-cards in endeavouring to get a census of hives in his district, and the result was not encouraging, and sincerely hoped collecting subscriptions would not be considered a part of his duties as district secretary.

The Chairman said it was not intended, but he should be happy to get the assistance of all that were free to give it.

Mr. Turner suggested that a conspicuous placard, setting out the objects and advantages of the Association, should be placed in all the working men's clubs and coffee taverns, &c., throughout the county.

Mr. Andrews said the idea was excellent. He should be also most happy to arrange for lectures in any village where it may be desired.

Mr. Sambels said there was a conspicuous lithograph of an apiary, prepared by Mr. Greenslade of Reading, which would be most excellent for placing in working men's clubs, &c., and promised to bring the idea before the committee.

The Chairman called on Mr. H. E. Roberts, certified expert, to make a few remarks on practical bee-keeping, who, in the course of his remarks, said: The first thing for a bee-keeper to do in spring was to see that his bees were all alive. If the bees were not noticed when the fine weather came in, it might be taken for granted there were none alive in the hive. Some people began to feed their bees with sugar-candy, but he preferred to feed them with syrup. If they found brood and a queen-bee in a hive on examining it, they would know it was all right; but if they found a hive without a queen, and it had plenty of bees, they should join it to another hive. He explained how this was to be done, and then said he did not think it was well too soon to adopt bar-frame hives; skeps with sections on the top were preferible for beginners; and he did not think it was advisable altogether to give up using the skeps. He next gave some practical advice in regard to dividing brood, and in answer to a question said he obtained 11 cwt. of honey last year from fourteen bar-frame hives and eight skeps.

The Chairman deprecated dividing brood too early; if done wisely the results were marvellous, but unwisely, were most disastrous.

Mr. Sambels said he was afraid much that had been said was not very interesting to several cottagers present who were not advanced bee-keepers or members of the Association, consequently he hoped the meeting would excuse him if he made a few remarks on practical bee-keeping that were intended specially for cottagers. He pointed out how sections could be raised on straw skeps, how much more saleable they were, and how the advanced bee-keeper would drive the cottager out of the field in a very few more years unless he raised honey in a saleable form. Being provided with a straw skep and super and cover, he explained their use, and proceeded to show the advantages of the bar-frame hive over the skep in giving greater command over the bees and ease in ascertaining the state of the colony. He showed the meeting a fine patch of drone-brood in worker-cells, the progeny of a 'fertile worker' which he had taken from one of his hives on the previous Saturday, and explained how much more difficult it would have been to have discovered the queenlessness of this stock if it had been in a skep; and, in answer to a question, explained how he intended uniting it to another stock at the earliest opportunity; and being questioned as to the certainty of the grubs being drones, said undoubtedly they would hatch out drones, although a clever writer in the *B.B.J.* had described such as '*fertile workers.*'

Several questions having been asked and answered on practical bee-keeping, the meeting closed with votes of thanks to the Rev. J. L. Seager for presiding, and Mr. R. T. Andrews for arranging the conference, one of the greatest marks of success being the interest taken by those present, several of whom joined the Association.

NORFOLK AND NORWICH BEE-KEEPERS' ASSOCIATION.

The third annual meeting of this Association was held at Norwich on Saturday, January 31st, the Rev. A. F. Bellman presiding.

The meeting was well attended, showing that the number of enthusiastic bee-keepers is increasing in the county since the formation of the Association.

The Hon. Secretary (Mr. H. R. Emms) read the annual report; from which we learn that during the year 1884 forty-eight new members have joined the Association, making the present total 245, against 234 last year.

The annual Show of bees, bee furniture, and honey,

was again held in connexion with the Norfolk and Norwich Horticultural Society. There was a good show of hives, &c., and the show of honey—which was exhibited solely by members of the Association—was grand, every class being well filled, and the appearance and quality good.

The medals and certificates given by the British Bee-keepers' Association were awarded as follows:—Silver medal, Robert Hawes, Buckenham; bronze medal, Charles Hazle, Buxton; certificate, H. Bartram, Happisburgh. Bee manipulations were also exhibited in the Association's bee tent, under the care of Mr. T. B. Blow, assisted by Mr. Lilly, and proved a source of considerable attraction. An examination of members desirous of gaining third-class certificates of competence in modern bee-keeping, given by the British Bee-keeping Association, was also held, under the superintendence of the judge (the Rev. George Raynor). Two candidates offered themselves for examination, viz., Mr. E. Lilly, of Buxton, and Mr. H. Dobbie, of Thickthorn, both being successful. The bee tent has also been exhibited at King's Lynn, Hunstanton, Westwick, Yarmouth, and Watton.

The balance-sheet showed the total receipts for the past year to have been 117*l.* 2*s.*, and after all expenses had been met, there was a balance in hand of 4*l.* 15*s.* 6*d.*

The report and balance-sheet were unanimously adopted, the Chairman stating that upon the whole there was good ground for congratulation upon the work of the Association during the past year. The subscription list had been a very satisfactory one, and it was hoped the forthcoming year's report would be no less gratifying.

The following gentlemen were then appointed to serve on the Committee for the ensuing year:—The Revs. A. F. Bellman, J. Blake Humfrey, H. Collison, J. P. Garrick, E. Harris, S. Hardinge and J. H. Payne, Captain H. L. Strange Herring, and Messrs. W. H. Back, J. O. Cattermoul, F. T. Chevallier, J. U. Aldridge, W. T. Gidney, C. B. Lucas, R. Harvey Mason, and C. W. Middleton. The Hon. Treasurer and Hon. Secretary were re-appointed with thanks for their past services.

A most interesting conversation then ensued, during which the Rev. J. Blake Humfrey brought under the notice of the meeting the advantages offered by the British Honey Company, which he considered was deserving the support of all bee-keepers.

HAMPSHIRE BEE-KEEPERS' ASSOCIATION.

An Introduction.

Worcestershire bee-keepers will learn from the report of the Hants B.K.A. that our esteemed friend, Mr. Davenport, has left Hungerford and gone to Stourport, to continue his labours as a Congregational minister. He holds a first-class certificate from the B.B.K.A., and during the past year did a great deal of professional bee-work for the Hants B.K.A. in a remarkably able and satisfactory manner. The report of his spring and autumn tour was printed *in extenso* in the Hants report. His loss to Hampshire should be the gain of Worcestershire, and we hope bee-keepers in that county will offer him a hearty welcome in his new sphere.—E. H. Bellairs, *Hon. Sec. Hants B.K.A.*

We have much pleasure in appending to the above Mr. Davenport's very interesting report of his spring and autumn visits:—

Upon my first arrival at Winchester, the first apiary I visited consisted of seven frame hives, all in excellent condition, save that they had been over fed. I recommended that a few combs should be relieved by means of the extractor. From thence I went to another apiary, where I find fifteen hives of all sorts, shapes, and sizes: all of which proved to be strong and in healthy condition, with numerous drones—an unusual sight so early in the season. These were quite ready for supering, and I urged the importance of uniformity and interchangeability in size. My next visit brought me before nineteen hives, in old-fashioned bee-houses, packed with saw-dust. Some of the stocks were in boxes, others in boxes of frames of every conceivable width and shape. Things were in 'a considerable of a muddle,' but the hives were very strong, and indeed showed signs again of having been over fed. The importance of *slow* stimulative feeding seems to have been overlooked in this locality. I then visited two more apiaries, in the latter of which the queens were worn out and required replacing. The train then took me to Chandler's Ford, whence I was driven through as fine a country for bees as is to be found in all England, honey yielding-plants abounding on every side, and even the hedges were laden with flowers yet unfolding of that wonderful bee shrub the privet. In a space of three miles I only passed twelve stocks (in skeps), and could not help reflecting upon the loss, or rather waste, annually arising from such neglect. The owner was from home, but the gardener took me to the bees. 'Well, gardener, how many bees have you?' 'Four stocks,' was his reply. 'Let us look first at the strongest'—a puff of smoke, a pause, and lo! the bees were—*non est*, or rather *non sunt*! The other stocks of which he didn't take so much account were in tolerably good condition, but combs twisted into all manner of fantastic shapes. Judging from the number of empty hives I saw here, as well as the large assortment of costly appliances of all kinds, I imagine the owner must belong to the very large class of enthusiastic but disappointed bee-keepers so often met with.

The next day was bitterly cold, but I met at the apiary of a working man the intelligent owner and several of his friends, who were much interested in the operations necessary in uniting, driving, &c. From here I took the train to Botley, where I examined the hives of several members, looking out for 'foul brood,' which I had been warned existed in the locality, but I am glad to report I failed to discover any trace. One of these apiaries was such as will commend bee-keeping for pleasure and profit to all who may see it, being admirably managed by a lady connected with the Society. From here I went on to Havant and Bedhampton, and then to Emsworth, where I found what might almost be called a bee-farm, consisting of twenty frame-hives, in the midst of a large market garden. The owner combined the two businesses, and expressed great satisfaction in learning what I was able to teach him. Sunday intervening, on Monday I went to Fleet, where I was hospitably received by a gentleman who had invited (as requested in the form) several neighbours to meet me, and together we visited the hives, and I was able to suggest several improvements in the methods of management. Here, again, I was met with a magnificent field for bee labour, showing the vast opportunities for educating the poor open to the Hants Bee-keepers' Association.

This finished my round of inspection, and altogether I was well pleased with the result. There were many instances of advance upon old methods; and although I feel bound to express the immense field open in every direction, the ground has very apparently been broken by the labours of the Hants B.K.A. One circumstance impressed me strongly, viz., that experts should not be hive-dealers. Some of the apiaries I visited were literally burdened with hives and appliances supplied by dealers who had formerly visited them, and unless people intend to make bee-keeping a regular pursuit such things are 'caviare to the general.'

September, 1884.—Owing to the increased number of applicants for expert's service, it is necessary to give a very condensed record of my work. Generally, I found everywhere evidence of the abundant yield of honey this season, and a marked increased amount of interest in bee-

keeping. At Botley I was surprised to find a stock which had been robbed and exterminated of every bee save the queen, who was alone, pacing the silent corridors which so oft had resounded with the busy hum of her subjects. At Emsworth the twenty stocks had grown to thirty-eight, and had yielded an immense weight in honey. The owner had also developed wonderfully in his knowledge of bee management. At some places the disposition to rob was so great that manipulation was extremely difficult, and the bees belonging to a railway porter gave me so many reminders of their bravery, I was painfully impressed. At another place I visited I fear my advent was *de trop*, the proverbial 'scissors' controversy spoiling my chances of obtaining a hearing, although I had to undertake a very long walk to get there! Nor must I omit to mention the excellent apiaries of two young working men I visited, whose hives—home-made—were of the very best description, twenty-nine in number, and stocked with strong, healthy bees. Here I had one of the very best teas I ever enjoyed, and if for nothing else I shall ever remember my visit there, for the unostentatious generosity displayed by the friends.

Owing to the large area embraced by the Hants B.K.A., I had a considerable share of railway travelling to perform. Starting from Hungerford I visited the extreme points of Bournemouth on one side and Petersfield on the other, taking *en route*, among other places, Holmesley, Romsey, Botley, Havant, Alton, and Bishopstoke; and throughout I was greatly struck with the marked improvement in the practice of bee-keeping over what I had witnessed in the spring. Knowledge gained by reading and experience is largely on the increase, making the work of the expert more difficult and his office more important. I found an unnecessary scare about *foul brood*; so much has been said and written about it lately, nearly every one is thinking his bees have it. Another complaint is the inability of many to dispose of their produce. But this is a question which must be dealt with by the Association, and hardly enters into the report of an expert.—HENRY DAVENPORT, *1st Class Certif. B. B. K. A.*

IRISH BEE-KEEPERS' ASSOCIATION.

The committee met on Tuesday last, at 36 Westmoreland Street, Dublin, and adopted the amended draft of the annual report, which is to be submitted to the general meeting to be held on Thursday, April 9, at 11 a.m., in the rooms of the Society for the Prevention of Cruelty to Animals, 36 Westmoreland Street. The prize list was revised and enlarged; it is intended to offer at the spring show a special prize for lady bee-keepers, also for observatory hives, and one for the amateur hive-maker. The next apiarian exhibition is to be held, by kind permission of the Royal Dublin Society, at Ball's Bridge, on 7th April and three subsequent days.

MIDDLESEX BEE-KEEPERS' ASSOCIATION.

A meeting in connexion with the Finchley Horticultural Society was held at the Assembly Rooms, Finchley, on Thursday evening the 11th Feb., H. C. Stephens, Esq., in the chair, when Mr. Blow delivered an interesting lecture on Practical Bee-keeping, illustrating the same by means of a frame-hive and various other appliances. Mr. Stephens, in moving a vote of thanks to Mr. Blow, said he hoped this year they would be able to hold a bee show in connexion with their annual flower show, and announced his intention of offering prizes for honey. The vote was seconded by Mr. J. T. Harveyson, after which a number of those present examined the hives, &c., and appeared greatly interested in their construction, and the facility with which the bees could be examined.

NORTHAMPTONSHIRE BEE-KEEPERS' ASSOCIATION.

Mr. J. E. Lamport Gilbert has made a mistake, in stating that the Northants Bee-keepers' Association has no members in North Northamptonshire, as I am a member, and reside in that district. Likewise, last year, offered to take the district secretaryship conditionally, but received no answer to my letter. I have again made the same offer.—J. R. TRUSS, *Bainton Heath, Stamford.*

LEICESTERSHIRE BEE-KEEPERS' ASSOCIATION.

CORRECTION.—Mr. Bridge, of Countesthorpe, will lend his diagrams to lecturers on bee-keeping *without notice*; he only requires *long notice* when called upon to lecture.—E. B.

BEES AND BEE-KEEPING.—The above was the subject of a lecture by the Rev. F. Dillon, hon. sec. of the Oxon Bee-keepers' Association, at Oxford, on February 17th. There was a fair attendance. The Rev. Lecturer, in opening his remarks, said he was there on behalf of the Oxfordshire Bee-keepers' Association to try and interest them in bee-keeping, and to show them what interesting creatures bees were, and what profit could be got out of them. First of all, he wished to call attention to that Association, whose report for the past year he had with him, and whose object it was to spare the bees all cruelty and suffering which was caused by the ignorance of people who keep them. What their Association with regard to bees wished to do was to show people that there was absolutely no reason why the bees should be killed in that way. It would be unfortunate if they were obliged to kill the bees, and could not get the honey in any other way; but it was not necessary, and he wanted to show them that it was cruel to carry out these old principles of destroying the bees. There had been a good deal of talk in the papers about vivisection, but he thought the killing of bees would not be defended by any scientific man. They not only wanted to defend the bees, but also to do good to those who kept them. By the new method put forth by the Association they would get a larger quantity and better quality of honey, and they would in addition, be able to keep their bees, which, if they had to buy in the spring, would cost them something like 10*s*. He spoke to those who were in the habit at the present time of keeping bees in the old straw skep, as they would know that the honey taken from the sulphur pit was only worth about 3*d*. or 4*d*. a pound; but if they would listen to their advice they would get them 1*s*. to 1*s*. 4*d*. a pound for it, by simply keeping bees in the proper way. Was it not better under all these advantages, being able to keep their bees, and having a better quality of honey, and larger quantity, to use the new and humane method? It had been known that people had taken 30, 40, 50, and even 100 pounds of honey from one hive by working it under that method; and if he could make good his words, and should prove to them that the Bee-keepers' Association was doing an excellent work, he hoped that all those who kept bees would come forward and enrol themselves in it. The lecturer then spoke on the natural history of bees, explaining the difference of queen, worker, and drone, and also difference of cells which contained the three classes of bees. He had alluded to the old sulphur-pit system of bee-keeping, and he wished to show them the system by which they could save their bees and get a better quality and quantity of honey. There were two ways, at the present time, of keeping them. One, the most advanced, and another not quite so advanced, but very proper and profitable. Let him describe the last, which was the old straw skep, only making sure to have one with a flat top, with a hole cut

in. Through that hole the bees would come up, and all they had to do was to put another hive on the top of it, which the worker bees would fill, and they would be enabled to take the honey without destroying the bees, and the bottom hive would be ready for the next year. By that method they were able to put on the top a crate of sections, or a bell of glass, or even another hive similar to the one below. At the end of the season they would then have their lower hive of bees still good, and they would be saved those qualms of conscience, which he did not doubt they would have if they killed the bees. Perhaps to those beginning bee-keeping it would be well to follow out that plan. Some people nadired their hives, and put another hive underneath, but it was a very bad idea as the queen was almost certain to descend, when she would not think of ascending. His first plan was a good one, but not the best. The best plan was the more modern way, namely, by the bar-frame hive. [A bar-frame hive was then exhibited, with double walls to keep the bees warm in winter, and fitted with a number of frames, that had been supplied with wax foundation. A crate of sectional supers was now produced, and the lecturer explained how they could be used.] The rev. gentleman went on to say that so far it looked very simple, but for beginners it would not be all plain sailing, as perhaps they might be stung, and everything would not go as they wished. But by using a smoker, which was like a pair of small bellows, they could puff some smoke into the hive, and the result would be that the bees would get in a fright, and at once make a rush upon the honey, and gorge themselves, so that they would not starve for two or three days, and while in that condition they would not sting them without they were actually hurt. There was one thing they must be careful not to do, and that was not to jar the hive, as there was nothing that made the bees so angry as that; and that was a very good rule they could keep in mind. In conclusion, the rev. gentleman called attention to how proper and careful feeding was most advantageous; and how bad feeding would prove most disastrous, causing unnecessary excitement by food running short as the bees were increasing. Several questions were put and answered, and a hearty vote of thanks was accorded the lecturer for his most interesting and instructive remarks. The company having inspected the bar-frame hive on view and implements used in humane bee-keeping, then dispersed, after a number of gentlemen had given in their names as members of the Association.

Italy and Italian Bees.—Italy is indeed a glorious land. Every time I have visited it I have been more than charmed—fairly enchanted. It is the land where the chestnut and the orange blossom—a land whose fertile plains and grand mountains, whose beautiful lakes and luxuriant vegetation fill one with enthusiasm and delight. It is favoured with refreshing dews, with copious rains, with a mild climate, and with a wealth of golden sunshine. How could such a land fail to have a beautiful and valuable race of bees! There is no need of my describing this race, nor telling in what respects it excels the common bees, for you are all quite familiar with these things. But a few words as to where the Italian race is found in its greatest purity may be acceptable. A few years ago there was quite a discussion in the American bee publications as to whether black bees existed in Italy or not, and very likely many are not yet clearly informed in regard to this point. An examination, however, of back volumes of the leading Italian Bee Journal, *L'Apicoltore* (Milan), would set this point at rest in the minds of all, for plenty of Italian writers on bee-culture have stated that very dark bees not possessing the three yellow bands exist in various parts of the peninsula and on the adjoining islands. In that portion of the central plain having as its northern limit Bergamo, its eastern limit Verona and Mantua, the Apennines on the south, and on the west Milan, we find Italians in their purity. Also below the Apennines between Genoa and Rome. Outside of these regions they shade off into hybrids.—*Frank Benton's 'Bees.'*

Swarms of Bees.—Two swarms of bees took place on Laines Farm, Cuckfield, occupied by Mr. Symons, on 21st and 22nd January. They belonged to his carter, named Baker, who is about to leave his service and cottage, and who had sold them to a neighbour. It is unusual for bees to swarm thus early, more especially as the weather on both days was extremely cold.—*West Sussex Gazette.*

Wasps.—In regard to the wasp question. My experience of them goes to prove that they are destructive to hive-bees, especially to weak swarms. I had a hive last year completely taken possession of by wasps. The bees were first disposed of, then the honey and the combs. I would certainly destroy every wasps' nest that could be got at.—A Banffshire Bee-keeper.

Honey Buzzards.—During the last year (1884) there has been an unusually large number of honey buzzards visit this country, as many as fourteen having been killed in one county. These migratory birds feed on the grubs of the wasp and the honey-bee, although not on the wasps and bees themselves. This increased number of the birds would point to the fact that both wasps and bees were in larger quantities, and more nests of these insects were to be found than has been the case for the last four or five years.—Herbert S. Saunders.

Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

SPRING MANAGEMENT.

(*Continued from p.* 68.)

At that date (middle of March) uncap a portion of the sealed honey of those colonies which still have abundant supplies, others that need it begin to feed, giving a continuous supply; but, if syrup is used, see that but little more is allowed than the daily consumption requires. Should it be decided to use my dry-sugar feeder, there will be no possibility of overcrowding the combs, while the bees are aware that a large store is always on hand, and the stimulation will be greater than with syrup; in this case, use American oil-cloth over, with smooth side to the frames, to cause condensation of moisture. If several combs still contain sealed food along the top, so much the better, as it never pays to allow bees to feed they are likely to be poverty-stricken.

Some of the more forward colonies may now have a comb inserted at the centre without danger, but the novice must not be too fast in spreading brood; let him bear in mind that nothing of the kind should be attempted until the space occupied appears *over*-crowded, and then he cannot go far wrong. Brood-spreading has generally been carried too far, and I do not myself recommend it except that as combs are returned, or foundation added, such should be placed about the centre of the cluster. A good queen (and no other should be retained) will very soon fill every available cell, providing the bees are properly crowded.

As yet, those stocks which are below the average should remain unmolested, except for the first inspection, when they should, if not already possessing it, have been supplied with sufficient stored combs to carry them to the end of April, at least. If necessary, remove such stores from strong colonies, and feed those rather than the weaker lots.

Towards the end of March, with the exception of the

last mentioned, all may have more of their sealed food uncapped, and at the next examination (first week in April) most of that remaining. Meanwhile, every previously well-provisioned hive should have had the feeder in operation before the old stores were likely to run short. Again add combs or foundation as required. Do not, as yet, enlarge the entrances, even though the bees may occasionally find hardly room enough during a warm spell of sunshine. Throughout this month the hives may be inspected, and foundation given about every seven or eight days, always selecting a warm day for the operation, and do everything as quickly as possible.

At the beginning of April, uncap a little of the honey in those weaker colonies previously referred to, and continue to do so at intervals until the end of the month, when unite as presently shown. In all apiaries, however well conducted, there are sure to be some colonies in spring which are below the required strength, and if allowed to stand as they are, such will give little or no profit the same season. It has many times been suggested that the stronger should be occasionally robbed of brood to assist the weak ones; but in the end this process causes only loss to the bee-keeper, and I must insist upon the good stocks retaining all their brood and bees until the time comes for supering, when, as I have before pointed out in these columns, two or three combs may be removed to advantage, crowding the bees into the sections at once. It has also been advised that the weaker colonies be united early in March, but when one has once practised this in comparison with that plan now given, of leaving them alone until the end of April, the latter will always be adopted in future. When united early, the excitement which ensues soon causes the loss of most of the older bees, and the two or three placed together soon become nearly as weak as they were individually; but if the operation is delayed until the later period, we shall find that almost the entire population consists of young bees, brought to life principally by those which, under the former condition, would have died early in March, instead of holding out for some six weeks longer.

Beginners but too often have nearly, if not quite, all their stocks weak in spring, and nine times out of ten they really do not know what a strong colony is. My own idea of what a genuine colony should be is this: 'It should have been so prepared the previous autumn that it will require no more food, and but little attention, until the first honey glut of the following year, when it should be quite ready to go into the sections.' Indeed, it will always be found that good stocks require least attention, but if the *autumn* preparation has been neglected, no amount of after care will prevent the season becoming a failure.

Nevertheless, I know of no better time to show the novice what condition his stocks should be in than May 1st. At this time most of his colonies should be ready to take to supers; but are they? I am afraid but seldom, for how often do we hear of supers being placed over half-filled stock hives, and the owner being surprised that the bees will not leave an already too large chamber to work in that which is only throwing them back still farther, by permitting the escape of vital heat, which is so necessary to their well-being, particularly at this time.

Now let me advise the beginner to cast away all scruples, and at the above-named date so unite his colonies—no matter how many may have to go to make up one stock—until each hive then remaining is occupied by not less than eight combs with brood, and crowded with bees. Then he will know what a strong colony should be, and then only will he begin to realise a profit.

Reserve only the best queens, and if any others should be too valuable to destroy, confine such until required, with a few attendants, in a small box (about 3×3 in.), having in it a piece of honey-comb, tied in a small frame. It would be folly to advise a beginner to establish nuclei outside to take care of these, just as we have been persuading him to do away with all weak colonies, but the more advanced bee-keeper would, however, be in a position to do so, and will leave such on the stand originally occupied by each, with one frame of bees and brood, with one of stores on either side. These will be valuable for uniting to any stocks the same day they may have sent off their queen with a swarm.

HONEY-JUDGING.

I am very glad the matter of honey-judging is under discussion. Certainly the 'impression' idea is not fully satisfactory. Those who have had much to do with examinations of any kind—take, for instance, a Latin or Greek composition paper—know well how the 'impression' varies after a certain number of papers have been examined. It is generally best (though this is unsatisfactory) to re-examine them again after a short interval, and this time inversely, taking the last paper first, and so on. My idea in writing is to suggest that if a scale of marks can be arranged—a thing which seems to me in itself very difficult—about eighty per cent of full marks should be allowed for in this way, leaving a margin of twenty per cent for impression—in a manner similar to the marks allowed for good style, &c., in an ordinary examination. One point increases the difficulty of fair honey-judging, viz., the *position* of the exhibit. Excellent sections in a bad position strike the eye as inferior to a very much poorer lot.—Ashton G. Radcliffe, *Ponthill, Tisbury, February* 20.

DO BEES HEAR?

Mr. Letts' experiments (page 52) with reference to the unsettled question of bees possessing the sense of hearing are far from proving that they are provided with even elementary auditory nerves, on the contrary the three tests that he records were undoubtedly responded to by the insects' marvellously keen sense of touch and not of hearing. Mr. Letts' first experiment is 'that of the gun firing in the immediate vicinity of a hive, when the bees momentarily suspended their murmurs.' Did the bees actually hear the report, or was the sound communicated to them by the sudden disturbance of the air? It is well known that a sudden explosion in mid-air disturbs the atmosphere to such an extent that houses, bridges, &c., are sometimes wrecked and otherwise damaged. Electrical explosions in the clouds, the report of which is thunder, often cause buildings to shake, and crockery, &c. to jingle. Therefore the bees instantly suspending their murmurs may doubtless be ascribed to their feeling the rapid undulations of the air.

Nos. 2 and 3 tests are most assuredly that of touch, and not of sound or hearing. To prove this, strike any sonorous body at the entrance of a hive being careful not to jar it, and note the result; not a bee responds to the sound, but if the floor-board is gently tapped the inmates at once feel the jar and are prepared to act on the defensive at once. Invertebrate nature is poorly represented by members possessing the organs of hearing, but the senses of sight and touch are marvellously developed.—H. Dobbie, *Thetkhorn, Norwich.*

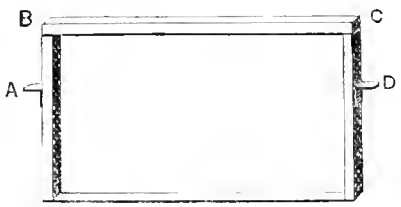
REVERSIBLE FRAMES.

Although not prepared to offer any experience as to the utility of reversing combs as brought to the notice of readers of the *B. B. J.* page 49 and 50, February 1st, I take the liberty of mentioning that a slight modification in the frames of my '83' hive (as exhibited at Knightsbridge and since improved) would admit of its frames

being reversed at will and that without having recourse to any additional metal attachment.

Personally, I object to metal fittings attached to anything inside the hive itself. Such metal fittings must seriously interfere with the warmth of the hive during cold weather.

An illustration of the frames belonging to the '83' hive may assist in conveying a proper idea as to the particular feature alluded to.



A standard sized frame without projecting top has brackets fixed on the frame ends, as at A and D. The brackets are intended to rest on inner sides of hive correspondingly shallower than the inner sides of an ordinary frame hive. It is claimed for this form of frame, that the quilt lying close to the frames from A to B, and C. to D., as well as over the top, the heat of the cluster is better retained from circulating all over the hive, the bees having, as it were, a good tight roof overhead and some distance down the sides equally confined.

Now all that is needed to make these frames reversible is to shift the position of the brackets to the centres of frame ends and make the inner walls half the depth of the usual hive, and we have a hive with reversible frames —better calculated to retain the natural warmth of the stock than would be the case with frames such as are in common use.—J. R. W. Hole, *Tarrington*.

MAKING A SOLUTION OF SUGAR WITHOUT BOILING.

Perhaps the following simple plan of making a solution of sugar without boiling may not be known to all your readers:

Put the required quantity of water into a jug or jar, or other deep vessel, and hang the sugar in a piece of muslin, so that it is just under the surface of the water.

By trying this plan with a tumbler of water, the *rationale* of it is at once seen. Streams of dense solution descend to the bottom of the glass, displacing water which, in its turn, becomes saturated and sinks. The same plan is the quickest way of dissolving gum, or any other substance.—F. Lyon.

WEIGHT OF SECTIONS TO BE ATTRIBUTED TO THE FLOWERS.

At the last quarterly conversazione of the British Beekeepers' Association there was a discussion about the weight of sections; some blamed the bees, some the beekeepers for the shortcomings of the honey; one gentleman said, 'One might as well blame the flowers, and so on *ad infinitum*.' Well the flowers really are the culprits. Clover-honey weighs very light, and sycamore very heavy. I weighed several sections of these kinds against each other last season, with the result that a section $5 \times 5 \times 2$ of sycamore-honey weighed two or three ounces more than an equally full similar section of clover-honey. In July I had some heavy, amber-coloured honey; all the 1 lb. sections were from one to two ounces above weight except one, which was exact. I should think heather-honey would weigh very heavy, but I have not tried the experiment.—Beeswing, *17th Feb.*

DRY SUGAR FEEDERS.

I am much obliged to you for your reply to my question about tin condensers to be used with dry sugar-feeders. I was not aware before that if 'the bars are too closely covered with quilting no moisture will be produced.' Mr. Simmins does not mention this when speaking of American cloth being placed next above the frames. Perhaps he means that no quilts or chaff cushions should be placed on the top of the American cloth, but I think such an arrangement would be too cold for the bees. Will you be good enough to say in your next *Journal* exactly what ought to be done with American cloth, or tin; if American cloth is used, ought it to cover completely all the frames, or only a portion, and what ought the rest to be covered with? If tin is used, would it be right to cover with calico and quilts, leaving a portion of the calico exposed, say, as much as covers two frames, and should this exposed calico be next to the tin condenser or farthest away from it?—Beeswing, *17th February.*

Mr. Simmins forwards the following reply to the above query:—'I do not myself recommend sheets of tin for the purpose of giving water by condensation, but if "Beeswing" intends to use such, it must be arranged as before stated, and with no more than two thicknesses of ticking over it, besides the ordinary roof. A high temperature is produced in and near to the feeding-box, so that the space under the slip of tin cannot become too cold. All the rest of the top surface must be covered up as warmly as possible—say, with the equivalent of three inches of chaff. When the entire space above the frames is covered with the enamel sheet, and the same depth of chaff above it, there will be found quite sufficient moisture collect round the edges; but where a metal plate, much smaller than the surface of the hive, is placed above the frames, and the whole covered with porous material, then the heated air escapes, though imperceptibly, and the metal remains dry, though had the cooler air been allowed access to the upper surface of the plate, of course a certain amount of moisture would collect underneath.

JOTTINGS FOR THE JOURNAL.

Black Honey.—If men could always define strictly what they mean there would not be such frequent misunderstandings. Recalling last season, there was a conflict of opinion as to the origin of black honey. If the supporters of the bramble theory meant the bramble berry and not the flower, I can, from evidence obtained this season, support them, for during the dearth of honey preceding the heather harvest my bees began to fill cells with black honey; and I noticed them working on the fruit of the raspberry and black currant, in the former sipping from the openings between the fruit and in the latter from burst berries.

Tits.—It almost gives a humane person a shiver of horror to read in the pages of the *B.B.J.* the cold-blooded manner in which your correspondent describes how he trapped the blue-tit. Let fancy dwell for a few moments on the agony which the poor bird must have endured to have its fine delicate leg broken in a spring-trap and afterwards to have its neck dislocated. It is a pity persons have not something better to do than practise such cruelty. What eternal torments they must think due to human sinners when they so delight to torture a little blue-tit for acting as scavenger and pecking up a few dead bees, for, after all the talk of how the tit goes and taps at the entrance of the hive and then picks up the bees that answer the summons, to use a rough expression, it's all 'bosh,' the tit simply scrapes his slender bill along the flight-hole to feel if any dead bee is within his reach, and if not immediately flies away to the next hive. Let any one

tap a hive as light as the tit does in the same temperature as when the tit frequents the hives, and he will soon find the bees are not in the humour to come to the door so promptly, and the tit is so remarkably active that he has not the patience to wait for a live bee coming down. Men would do better to think oftener before they take away innocent life.

Springs for Smokers.—I see a correspondent raises the question of spiral springs for smokers. The one I use is made by Mr. Dixon of Great Ayton, and he uses spiral springs, and I can only say it has been the cheapest and best smoker I have ever used.

Italian Bees.—I am also glad to see accounts of such different ditties being sung in favour of Italian bees, with special reference to its first cross, from what were sung last year in the pages of the *Journal*.

Sections.—Great attention is likely to be bestowed upon the standard size of sections this coming season. I do not think much will come of it unless they issue a a standard two-foot rule, or send the makers to a night-school to learn how to use one, as the so-called standard frames issued by different makers differ considerably. Take a case in point: at the Ripon Show there were only two exhibitors of hives, and upon comparing the frames it was found there was considerable variation. One of the gentlemen visited the 'Healtheries' on purpose to verify the frames he used, and found them exact, so that the other must have been wrong. To test this matter let any one send for a standard frame to each of the different makers, and he will at once be convinced that the makers have not arrived at an agreement as to what is the standard size.

Yorkshire Bee-keepers' Association.—As this is an age of raising monuments, I think a subscription might be set on foot to erect such a hive—something in the Pompey's Pillar style—to be placed on the top of Roseberry Topping as an example of what might be achieved by the Yorkshire Bee-keepers' Association as soon as they become known in the district. We have here one solitary member, and he often asks himself the question what is the use of belonging to the Association. But if we had a monument such as Mr. Blow illustrates in his catalogue,* why we might raise our heads and roll our eyes and say, Look at that.

Reversible Frames.—I like that idea of reversible frames; it looks like business. By-and-by, when the proper hive is discovered, which will be a Combination hive extractor, where the principle is after a grindstone handle, and nothing left to do but turn the handle, and, *ergo*, the honey will fly out as fast as the bees bring it in; and the most charming result will be the bees, being turned round a few times instead of flying right at you, will go off on the wrong track and bring in more honey, have it duly extracted, and to work again. This will be something like bee-keeping; none of those 'blighted hopes' which an American contemporary devotes a column to!

Progress in Bee-keeping.—Bee-keeping is progressing here, bar-frame hives are beginning to dot the country side, and people are looking at the profits that can be got out of flowers. Some of them do not ignore the sugar-cask, and the returns are prodigious long before flowers come out in quantity. For my part I have no taste for anything but our golden heather honey, pure mountain dew that cannot be imitated by any spurious compound.

Hoping that we may have a good season, a weekly *Journal*, and harmony amongst bee-keepers.—W. Crisp, *Great Ayton*.

* We presume our friend refers to the representation of the Stewarton Hive.—Ed.

SMOKER SPRINGS.

A still simpler spring than that suggested by Mr. Fewtrell is one of this shape, made of wire and put on *outside* the thin end of bellows with two staples, so if worn out or broken it can be readily fixed without removing bellows. I believe E. M. Hart & Co. *now* fit all their 'Cold-Blast Smokers' with them.—W. E. Burkitt, *Buttermere Rectory, Wilts.*

THE SNOWDROP AS A BEE FLOWER.

I do not think the majority of bee-keepers recognise the value of the snowdrop as a bee flower. I found they are preferred to the crocus by the bees. As they open downwards their pollen is protected from the wet, and bees can gather off them while they cannot off the crocus, and they also remain in bloom a much longer period. I cultivate several thousands of them, especially as a spring flower for my bees, and can add my testimony to that of L. Attenborough in Feb. 15th number of *Journal*.—J. Churchill.

SECTIONS IN BODY OF HIVE AND TIN DIVIDERS FOR SAME.

Referring to the Rev. W. E. Burkitt's article of February 15th on sections placed in body of hive. It is not a new idea, as on page 46 of the July number of *B. B. J.* for 1881, Mr. C. N. Abbott (the then Editor) gives a woodcut of a pile of sections so placed, and showing that his inventive mind had already thought of the plan of placing sections at right angles to the frames, and also on their sides, to do away with the section frame. With reference to the tin dividers, spoken so highly of by the reverend gentleman, I may say that to Mr. Bellairs is due the credit of the invention.—W. T. Joyce, *Farnborough, Hants.*

TAKING STOCK.

Having sold my honey, wax, &c., I have taken stock to the end of December 1884, and thinking my success might stimulate some timid persons, wishful to embark in bee-keeping, I offer my experience for their consideration and encouragement.

Well, March 10th, 1881, I purchased a box with three holes in the top full of comb and bees, for 18*s.*, I sold 1*l.* 12*s.* 6*d.* worth of honey, and had three swarms of bees from it. I had four hives to commence 1882, the produce of which was was 3*l.* 16*s.* for honey, and several swarms, some of which I united. I had eight hives to commence 1883, the produce of which was 9*l.* for honey, and several swarms, some of which I united. I had thirteen hives to commence 1884, the produce of which was 28*l.* 15*s.*, and two swarms, one of which I sold with hive complete for 1*l.* 10*s.* Consequently one hive (or box) has produced in four years fourteen hives, and the large sum of 43*l.* 3*s.* 6*d.*, to which add the value of the fifteen hives and their glorious army of occupation, at 1*l.* 10*s.* each (22*l.* 10*s.*), which makes a total of 65*l.* 13*s.* 6*d.* Deduct four years' outlay, viz. 16*l.* 2*s.* 6½*d.*, which leaves me 49*l.* 10*s.* 11½*d.* profit and stock to begin the season of 1885.

I make my hives of 1-inch wood, bacon-boxes, &c., bar-frames, glass windows, 16 in. each way inside by 11 in. deep, supers same size by 6 in. deep, one of which supers with honey and comb weighed 56½ lbs. I sold 102½ lbs. comb honey at 1*s.* 4*d.*, and 350½ lbs. extracted honey at 1*s.* per lb., together with what I kept for myself and left the bees for the winter. I had quite a quarter of a ton of honey last season to sweeten my labour, fill my pocket, instruct my mind, amuse my friends, and astonish some of them. I had one crate of sections as much for novelty as

profit. I got a catalogue of hives and bee furniture, bought *Modern Bee-Keeping*, price 6*d*., became a yearly subscriber to the *B. B. Journal*—the mainspring to my progress, indeed indispensable for practical information, teaching me what, when, and how to act. Its pages abound with so much instruction about little insects who have all through the sunshine of our life been busy by our side, that really one is ashamed to admit so much ignorance concerning them, and feel very much indebted to the pioneers of the bee-world for showing us the marvellous wonders in nature, as exemplified in a hive of bees. It is an enjoyment to read and study their writings. Yes, above all, I would impress upon the minds of beginners to commence taking the *B. B. Journal*,—the first step, the very best one; it will direct you as it has done myself in the right way to success.

I may just say I have been a butcher, although butchers are notorious for living well, driving fast, and dying beggars, yet I have not swallowed the knife. I have exchanged the beef for the bees, the killing for the saving, the kicking for the stinging; yet I only got stung three times last year, and that through carelessness. However I must conclude, and if my good intentions in the above disconnected remarks induce any wavering over difficulties, which will be so easily vanquished by the little word 'try,' then I have accomplished the aim and end of my desire, and hope they may try and overtake me, wishing them and the *British Bee Journal* every success, I for the present say good-bye.—Jos. Franks, *Longnewton, Darlington.*

BEE-KEEPING IN SCOTLAND.

It seems a pity that I have failed to convince such a presumed champion of Scottish rights as 'J. H.' aspires to be, and yet evidently his arguments against my assertions are summed up in his last effusion in page 51, to his own self-satisfaction. It will be a sad day for our native Scotia when the dread of such correspondents shall hinder in any way the free and generous discussion of her failures as well as her successes. It is well, therefore, to treat with contempt such insinuations as English protégés, fledglings, &c.: more proof could be added, however, to my former notes than I could possibly expect to appear in the columns of the *Bee Journal*. But to prove the advancement of bee-keeping within easy reach of 'J. H.' I could take him to districts within a few miles of Glasgow, where ten years ago bees were to be seen in nearly every garden, now, alas! such a spectacle is unknown. As I said before bee-keeping to be successful in Scotland must be a national industry and not the 'reserved hobby' of a few individuals. 'J. H.' will have further insight into progressive bee-keeping, by reading Mr. McHenry's paper on page 43. If Scotland had been to the front with advanced bee-keeping as she has been a pioneer in many important industries and discoveries in every part of the world, such associations as the North of Scotland and others would have been formed long ago, and the finest honey-producing country in the world would have taken its position as such in such places as the recent Health Exhibition in London. I trust, therefore, that 'J. H.' will lay aside the matter of jealousy on this important subject and honestly give 'honour to whom honour is due.' I have no fear of the position which Scotland will eventually attain to in the bee-keeping world. We want enthusiasts, and we want fair open competition between old and young; and if our individual talents are concentrated on adopting the best and cheapest methods of producing pure honey, then, and not till then, are we progressing in bee-keeping industry. 'J. H.' agrees with me in my opinion of Mr. Bennett—I know him well, and believe his love for the work is the sole motive of his unselfish labour, our duty is none the less, however, and needs no further comment.—J. A. B. *Hamilton, N. B.*

BEE-KEEPING IN SCOTLAND *versus* EDINBURGH SHOW OF 1884.

As a reader of your very valuable *Journal* I have been interested by the effusions on the above subject. I find, however, on page 68 an article said to be by 'One of the Judges.' This, I think every impartial reader of the *Bee Journal* must say, is a concoction of another party. For myself, I don't believe it was ever written by any of them. By referring to page 255, of Aug. 1st, 1884, the report of Edinburgh Show is commented on by the able secretary; and he says the judges for bees and hives were Messrs. Buchanan and Patrick, but I find in the article of Feb. 15th, 'One of the Judges,' *so called*, says, The bee-furniture at Edinburgh was not only superior, but the prizes were awarded to those that possessed the requirements necessary to bee-keeping, and this I along with my "coadjutors" intimated to the grumblers at the time.'

Now, sir, how does it come if only two judges were appointed to judge bee-furniture, that the judge who writes had, to use his own words, a number of judges along with him in his department; probably they were competitors too?

I am a member of the 'Caledonian,' but was not an exhibitor; but being interested in bee-shows I took delight in visiting the Edinburgh one, and I must confess that it eclipsed anything I had ever seen previously, and I may state that I saw the great show in the Crystal Palace in 1874, so much talked about by our 'heroes;' and I also, when speaking with Mr. Neighbour, asked his opinion about the show, and he declared it to be the best he ever saw in his life.

But to return to the judge's effusion on Edinburgh show. I cannot understand what he means about the gold medal in his closing sentence: is he going to offer one for the Aberdeen show? I hope he will make it more plain in his next letter. In conclusion, I may say I have notified Messrs. Buchanan and Patrick about this letter. —Erytnall.

[As we were going to press, we received another contribution written in the above strain, signed 'Banks of the Clyde.' We see no object to be gained in the continuance of this controversy. We had hopes that the contributions of our northern friends would have been more exhilarating and instructive; and we trust that these hopes may yet be gratified.—Ed.]

THE LAST CONVERSAZIONE.

Your last number was particularly interesting, and the subject of honey-judging treated on Jan. 28th is very important, the more so because it is not without difficulties. Being not uninterested personally, I should like to say that I question whether it is possible or desirable to lay down hard and fast rules. As to the sealing of sections, I do not see the sense of preferring those sealed so thinly that you can see the honey inside, and are likely to see it outside sooner than you wish. Give me a good, fair, smooth cover to the cell; a good cork to the bottle. But why call it 'thick' or 'heavy?' What, after all, is the extra amount of wax in a crate of sections?

Perhaps more important is the question of the size of sections. If a 1-lb. section is not to contain more than 1 lb., why should it be qualified if it holds less? And then how many crates would stand the double test of $4\frac{1}{4} \times 4\frac{1}{4}$ size and 1-lb. weight (exactly)? It appears to me that you must either admit a minimum of (say) 15 oz., and a maximum to suit a slightly out-size section, or call them small and large sections. It happened to myself to have a (nominal) 1-lb. section-crate disqualified by the judges because the sections were too large—an old out-size of Abbott's. This I was told on entering the room by one of the judges, a leading member of the B. B. K. A. I am sure I instantly bowed to the decision, having had too much experience of judges' work

not to know what is due to those who fill that unenviable post. I hardly gave the matter a second thought, as I was told that only a certain size was recognised in higher quarters, and I took no trouble to make a comparison of exhibits, though I rather fancy that, but for the disqualification, mine might have taken second place. But now Mr. Peel says that no official standard has been fixed! Why, here's a 'failure of justice,' and no 'court of appeal.'

Surely something must be decided, and judges correctly instructed, either to be as strict as Portia, or, better still, to use their free common sense.—A Silver Medallist.

Foreign.

FRANCE.

According to the *Apiculteur*, the sale of honey in France generally, but in the Paris market particularly, is not so brisk of late as the friends of apiculture could wish. It is even feared that at the present rate last year's stock will not be all cleared off before the fresh crop obtained from early fruit-blossoms comes in. A satisfactory business was done during Christmas and the recent new year's festivities, but the demand has been particularly slack ever since.

The same contemporary mentions as a fact that owing to the reduced prices at which stocks and swarms have had to be sold of late years, several apiculturists have decided upon giving up breeding bees for sale, in order to devote their apiaries to the production of honey: with this object in view, they are introducing larger hives so as to check the natural tendency of swarming, believing that, under existing circumstances, it will pay them better to direct their attention to the production of honey. The difficulty, however, of disposing of last year's supplies, continues the Journal above named, is likely to cause a momentary reaction upon the already well-defined movement in French apiculture.

Advices from Marseilles show that the recent arrivals of wax at that port exceed the sales, and the stock on hand during last month averaged upon 50,000 kilos. Algerian was offered at from 155 to 160 francs per 50 kilos, and Morocco at from 155 to 165 francs according to quality.

ITALY.

Mr. Frank Benton has issued the first number of a leaflet entitled 'Bees.' It is dated 'Leghorn, Italy, Feb. 20th.' The purpose of this will be gathered from his opening address, which we append:—

'To each of my old friends and customers I have a few words to say, yet haven't time to write a separate letter to every one; moreover, each letter would cost five cents postage, or if over one-half ounce in weight five cents for each additional half ounce or part thereof. As there are some hundreds of you now, these are considerations worthy of attention. I wouldn't like to have you get the idea that I'd be glad if your number was smaller, nor do I want to neglect any one of you; so I've concluded I'd just print these lines, and besides saving myself a great deal of time each copy will cost but one cent postage. Then, too, I am sure you will take more pleasure in reading plain print than any hurriedly scrawled letter I might send you. When you get this, kindly send a line—a postal-card if no more—to Munich, Germany, and I will then know you are not altogether displeased with the idea of getting in printed form the items I have to communicate to you. The good wife will receive your replies, and I am sure will be much interested in them, and eventually they will all reach me.

'Meanwhile, I may take the liberty of presenting you additional thoughts from some other point in my journey. Friends in Germany wished me, as I set out, a *glückliche Reise:* in Italy it has been *buon viaggio;* and when I tell you that, if He who rules the deep wills it to be so, I shall be, when you read these lines, on the confines of Sahara's sands, I am sure you will all add the English "A pleasant journey." And for this as well as many other kind words and encouraging deeds I return you my sincere thanks.—Frank Benton.'

The first number of the Rev. Giotto Ulivi's new monthly Journal, called *L'Apicoltura Razionale*, has made its appearance. It bears on the frontispiece an illustration of his noted 'Giotto' hive the principle of which he enthusiastically advocates for universal adoption. His motto is '*Industriae simplicitas ac parsimonia leges.*' Although the practical utility of the 'Giotto' principle is not unanimously admitted in apicultural circles, yet its author's knowledge of every subject connected with bee-keeping is so well rooted that his journal has met with a favourable reception by the whole of the apicultural fraternity, and *L'Apicoltura Razionale* is looked upon as a valuable addition to Italian bee literature.

Judging from the news which is reaching the Association from all parts of the Italian Peninsula so far bees have wintered satisfactorily.

The *Apicoltore* informs its readers that a Bee Exhibition and Honey Fair is to be held in Milan between the 20th and the 27th of September next. Further particulars will be published as soon as possible.

AMERICA.

Prof. A. J. Cook, in a paper read at the Michigan Convention, writes:—

'The new facts, if they be facts, recently developed by Mr. Frank Cheshire, of England, in reference to foul brood, are certainly very interesting. Mr. Cheshire claims to have found the specific cause of foul brood in a kind of bacterium which he calls *Bacillus alvei*. He thinks that these are not confined to the brood, but swarm everywhere in the adult bees, queen, drones, and workers, and even in the sperm-cells of the drones and ova of the queen. He thus objects to the term "foul brood," as he believes old bees die from this fungoid affection.

'He thinks that honey probably does not contain the spores, but that they—the spores—are conveyed on the feet and antennæ of the bees. Lastly, he suggests phenol as a specific to be used as the cure of the malady. He is not the first to suggest phenol, nor is the idea of the moulting of the lining of the alimentary canal with the skin of the larva original with him, as it is a fact well known to every entomologist.

'Now, while we should be very glad of this elaborate investigation by Mr. Cheshire, we may well pause before we join in his cry of "Eureka!" If the adult bees are attacked with the *Bacillus alvei*, why do we get none of the characteristic odour from them? And how are we to explain the cure by partial starvation which has been so successful in the hands of Messrs. Jones, Mason, and many others? These well-authenticated cases of cure can be explained only on the ground that the active spores are confined to the honey, and that the adult bees are not victims of the malady, and can only convey it in the honey. Again, why is it that so many fail with phenol?' While we may all hope much from such careful research, we must yet wonder whether the bottom facts are reached in this matter of "foul brood."'

CEYLON.

I am not sure if the readers of the *British Bee Journal* are aware what a fair opening there is in Ceylon for a small capitalist who understands the working of an apiary on a scale entitled to make it a remunerative business; and a few words on 'Ceylon bees' would perhaps not be amiss.

It was my pleasure to meet, and become personally acquainted with, Mr. Rudolph Dathe, bee-master of Eyotrup in Hanover, at the house of a mutual friend on Maria Estate, in the neighbourhood of Kandy, in the early months of last year. This enterprising gentleman had frequently heard from his father, also a bee-master, of the productiveness of the Asiatic bee: and, undaunted by the failure of Professor Frank Benton to import these bees, which was mainly due to his illness in Ceylon and quarantine on the return journey, he determined to visit that island in the hopes of securing several colonies. This he did with the assistance of the German consul and a couple of his fellow-countrymen, superintendents of estates in the Hill districts, as well as Mr. Holloway, the energetic proprietor of Maria estate, to whom he kindly presented the swarm of Italian bees which he took with him to Ceylon.

A very interesting account of Mr. Dathe's travels, written by himself, appears in Nos. 19 and 20 of the *Bienen Zeitung* of October last.

The only bees which may be profitably kept are the two largest of the four species to be found in the island. The first of these is the Bambara (*Apis dorsata*). They hive on the branches of the larger forest trees, their combs being of enormous dimensions. The largest one found by Mr. Dathe was more than a metre in breadth and 65 centimètres in length. The upper part which served as a receptacle for honey was 13 centimètres in thickness, while the normal thickness of the breeding comb was about 34 millimètres.

This bee is about 18 millimètres in length, but owing to its great power of tension often appears longer. It is prettily marked, and having longer ligulæ, and being very hairy, it is better adapted than the *Apis mellifica* for the rapid collection of honey. The queen is 23 millimètres in length, and of a blackish-brown colour. The sting of the *Apis dorsata* is sharp and severe; but the action is clumsy, so that the bee can be removed before it is inflicted.

Taking a walk in the neighbourhood of Hanguranketty in the Hill districts, I came across a beautiful piece of honey-comb depending from the branch of a tree which overhung a somewhat precipitous ravine. It was semi-circular in shape with a radius of a foot. The wax was almost snowy white, and the cells perfect. I was told by my servant that the Bambaras frequently build a temporary residence in this way until they are assured that a sufficient number of honey-yielding flowers are to be found close at hand. Apparently these had decided that the situation was a bad one, for the comb was deserted.

The next in size, though it takes priority in the quality of its honey, is the Mi Mœssa, from the Singhalese 'Mihiri,' sweet, and 'Mœssa,' fly (*Apis indica*). They closely resemble the Italian bee. They hive in the cavities of trees in the garden plots of the natives, as well as in the forests. From this peculiarity they are more easily tamed than the Bambaras, and are frequently kept by the villagers, who make a most primitive hive by placing one chatty, or earthenware vessel, on the top of another face downwards, holes in the upper part and sides of the lower chatty forming the means of entrance. The swarm is thus raised some foot or so from the ground, which prevents the bees from being affected by the damp. Colonies of the 'Mi' as well as the 'Bambara' can easily be obtained at the rate of a rupee (1*s.* 8*d.*); indeed on one occasion I purchased a colony for the small sum of sixpence. The price of the honey varies from 37½ to 50 cents per quart bottle.

The 'Dandupolbawa (*Apis florea*) is smaller than the 'Mi,' and longer and proportionately more slender than the larger fly. In a pecuniary point of view they are of little value, only producing a small quantity of honey. This, however, is very sweet and of a pale yellow colour. They hive on the lower branches of shrubs, such as the coffee, and are easily handled, the pain of the sting being only momentary. Shortly before I left the island I had two swarms which were working well together, depending from a coffee twig placed across a small tea-chest, which stood on a table in the back verandah.

Lastly come the peculiar little 'Tom Thumb' bees, or, as the Singhalese call them, 'Kanameyawa mœssa.' They are much smaller than the common fly, and are found in tiny holes of trees, crevices of rocks, or anywhere where they can obtain shelter from wind and rain. One swarm of this tiny species of the hymenoptera had established themselves in the body of an old and eyeless china dragon on the door-step of the Maria Estate bungalow. They are called 'Kana' (ear), from their determined attempts when roused to enter the ear of the disturber of their peace. They have no comb, the honey being soaked in a mass of blackish-yellow wax. The honey is very sweet and is used medicinally by the natives. They have one advantage over all the other species,—merciful Providence has not endowed them with a sting.

If any one could be persuaded to start a small establishment in Ceylon, I feel convinced that, if experienced and careful, he would be sure to make it pay, and have a fair balance for his own pocket: especially as no one has yet tried the experiment, and he would consequently have the whole business in his own hands.—R. Burleigh Campbell, 25 *St. James's Square, Monmouth.*'

CHILI.

Exports of Honey and Wax from Chili in 1883.

Honey.

From	To	Kilos	Kilos
Valparaiso	Great Britain	215,530	266,530
Talcahuano		50,930	
Ditto	France	26,804	242,139
Valparaiso		215,335	
Ditto	Germany	740,057	772,266
Coronel		2,209	
Melipulli		30,000	
Valparaiso	Belgium	6,200	6,200
Ditto	Uruguay	1,785	14,085
Talcahuano		12,300	
Valparaiso, &c.	Brazil, &c.	8,986	8,986

(1289 tons, 12 cwt. 1 qr. 20 lbs.) = 1,310,256
Valued at $201,392.

Wax.

From	To	Kilos	Kilos
Valparaiso	Great Britain	19,452	24,931
Talcahuano		5,479	
Ditto	France	1,745	7,988
Valparaiso		6,243	
Ditto	Germany	64,271	65,071
Melipulli		800	
Valparaiso	Peru, &c.	1,634	1,634
Talcahuano			

(93 tons, 1 cwt. 0 qr. 12 lbs.) = 99,624
Valued at $85,617

	1882		1883	
	Kilos	Value	Kilos	Value
Honey,	1,532,249	$232,340	1,310,256	$201,392
Wax,	70,011	62,570	99,624	85,617

Extracted from *Estadistica Comercial de la República de Chile correspondiente al año de 1883.*

* The writer of the above letter has forwarded to us a book which has been recently published by him; it is entitled, *A Trip to Tissa, Ceylon.* It comprises three sketches: 'A Trip to Tissa, Ceylon,' 'A Singalese Devil-Dance,' and 'A Night's Salmon-fishing on the Wye.' The book is illustrated with two lithographed engravings, 'Tangalla Rest House, Ceylon,' and 'Symond's Yat, Monmouth.' The author has a facile pen, a genial disposition, a lively imagination, and good descriptive powers. We hope to have from him further communications on apiarian matters when he resumes his duties in Ceylon.

Echoes from the Hives.

Northampton.—I put ten stocks into winter quarters and all are alive and doing well. February 14th was a fine day, the bees were flying freely and carrying in pollen. On that date I took the opportunity of looking at three hives I thought would be short of stores, but found the consumption of stores had been remarkably small. I could not resist the temptation of lifting up a central frame, and, to my surprise, found brood in all stages; in all three cases the population had increased since the autumn. I hope to see how others have stood the winter, as I know of several cases of stocks dying in this county. Mortality among my bees has been very small, in fact, I am utterly at a loss to account for so few dying. My stocks are well packed with chaff packing on the top, inside, outside, and every other side.—J. E. Lamport Gilbert, *Hon. Sec. Northants B. K. A.*

North Leicestershire.—On the 12th inst. the bees had their first spell of work on the aconites and snowdrops. To-day (24th inst.) they have been carrying in abundance of pollen from crocuses, arabis, aconites, and snowdrops. Barley-sugar and pea-flour are being used as a supplement.—E. B.

Harborne, Birmingham.—Bees here have wintered well, and were gathering pollen from snowdrops, wallflowers, and a few crocuses, on Friday and Saturday, the 13th and 14th of February. Most of the hives have started breeding, but we do not commence stimulating till the beginning of March. I shall work for extracted honey solely this year, as it sells so much better than sections, many people actually straining the honey out, instead of eating comb and all.—Lordswood.

Oxford, Feb. 21st.—A week of stormy weather has been followed by a very sharp frost, but, with a little care, everything so far has gone on well; and I do not expect to hear of anything now, as most of the hives I have visited are in excellent condition, one hive having three frames of brood, but I am not certain that everyone will agree that this is a good sign; though it cannot go far wrong if properly attended. The few bright days have been hailed with delight by the bees, who have hunted in vain for some flower or other to gather a little honey from, but without success, as the crocuses have only just began to peep, though we have great expectations. It might be interesting to know that Mr. D. S. Brickland, Abingdon, took 162 pounds of beautifully sealed honey from three skeps in May and June, 1884, which was a very good beginning for a novice.—E. F. H.

Honey Cott, Weston, Leamington, Feb. 23rd.—The week ending February 14th was nice and mild, so that the bees had a good chance to fly; also, it enabled me to look over many stocks, and change their floor-boards. I was agreeably surprised to find the majority in good order, more especially as last month I found two or three stocks had dysentery. Two or three days at the end of last week the weather was very severe, with a lot of snow; but about noon on Sunday it changed, and became much milder, so that the bees were out in great numbers on the crocuses and snowdrops; and a mezereum tree, which is smothered with red blossoms, was very much visited by them.—John Walton.

South Cornwall, Feb. 24.—Nothing of importance to report since last month. On the few fine days we have had bees have flown, and have gathered pollen from furze. We have but few crocuses. I find a straw skep very light. I don't know why, unless the bees have been gluttonous, for I feel confident they were not stinted in their stores. No frame-hives examined yet, the weather quite unsuitable, and they ought to be in no want. I have never heard of a case of foul brood or dysentery in this neighbourhood and sincerely trust I never shall.—C. R. S.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Busy Bee.—*Distance from Centre to Centre of Combs.*—$1\frac{9}{20}$ is the correct distance, and the more nearly we approach nature in our dealings with bees the better. $1\frac{1}{2}$ inch must not be exceeded.

N. M. B.—1. *Bees on Outskirts of a Town.*—There is no objection to your proposed position. Bees thrive in far more confined situations. 2. *Cowan Hive.*—If ants are likely to be troublesome by all means take steps to keep them out. A simple means is to drive a large nail or screw into the end of each leg, leaving about two inches projecting. Let these projecting ends stand in saucers or pans of water, or still better, oil. You had better not put your hives under a shed, but render them fit to stand alone. If you alter the make of the Cowan hive by fixing the loose interior hive you destroy his method of packing for winter. You would not find two stocks winter well one over the other, and you could not readily get to the lower one if it required food or attention. Better use long hives, and the stocks back to back.

Felix.—1. *Multiplying Stocks in Skeps.*—Yes; your plan is correct, and you need not fear but that there will be bees enough left to hatch the brood in A, supposing, of course, that other conditions of success, such as strength of stocks, fine weather, &c. are present. 2. *Driven Swarm.*—No; the driven swarm should be treated as a natural swarm, and placed upon a fresh stand, otherwise you will weaken the parent stock too much. 3. *Directions for Swarming from Skeps* have been repeatedly given. You will have an opportunity of establishing your ideas in favour of skeps by entering as a competitor in the next 'Bligh Competition.' At present we cannot agree with you.

West-Midland.—*Extracted Honey.*—The largest harvest can be obtained by the doubling system. If you do not wish to adopt that system, your plan of giving a set of combs over the brood-nest is the next best plan.

Beginner.—*Pop-holes* are spaces left at corners, and sometimes at bottoms and sides of sections, which make them light, *i.e.* not so heavy as they would, and should be when well filled. This can be prevented by giving sheets of *good thin* comb-foundation. A little management on the part of the bee-keeper is sometimes necessary, such as inverting a few sections occasionally.

Alfred P. Whitington and J. Hall.—*Reversible Frames.*—There is not in the sketches forwarded such a novelty in the principles of the reversibility of frames as to require us to give an illustration of them. Those that have appeared in our pages seem to represent the principal features which have been brought out in your drawings.

Beeswing.—1. *Pop-holes.*—Refer to reply given to 'Beginner.' 2. *Dry Green Mould.*—This has been found to be caused by mouldy pollen that has not been capped by honey. Dead bees if allowed to lie in heaps in a damp hive will also be covered with mould.

J. P. Allen.—*Sugar for Bee-feeding.*—The sample marked No. 3 would prove most suitable for making syrup. No. 2 might answer the same purpose; but it is very inferior to the preceding. No. 1 would not be useful for dry feeding. Procure Porto Rico or the best grades of Demerara.

H. T. Bland.—We beg to refer you to our advertising columns for purveyors of Duncan's Pearl Sugar.

Boz.—*Candy.*—Give one cake, weighing about a pound, and if that is gone before there is outside food to be had, give and another and another.

Arthur Townend, *Jamaica.*—1. *Honey from Logwood Blossoms.*—Logwood has a slight smell resembling

that of violets, a sweetish taste, and is an astringent; and the probability is that honey from its blossoms partakes of the same properties. 2. The Honey Company is, we believe, founded on purely commercial principles; but not being connected with the *Journal*, we would refer you to the secretary of the Company for replies to your inquiry.

VERITAS.—*Judging at Shows.*—We entertain no doubt of the 'truth' of your statements, but we have some hesitation as to the propriety of the insertion of your communication.

C. POLAND.—*Chilled Bees.*—Your bees had evidently been beguiled by a beam of sunshine to venture out of their warm hives: and on their return they had been caught by a 'snap' of cold, and prevented re-entering their homes. As the weather improves, the bees will get stronger and more hardy, and probably this may not occur again. Picking up the fallen bees and taking them to a warm place will generally restore their suspended animation.

H. G.—Mr. D. S. Given, the inventor of the Given wired foundation, died in Los Angeles, Cal., on July 10, 1884, where he went in November, 1881, with the hope of regaining his health. Mr. Given was born on Dec. 22, 1843, and resided in Illinois from 1864. In 1866 and 1867 he was secretary of the Freedman's Bureau. His partner in business, Mr. J. R. Caldwell, in company with the widow, continues to carry on the business at Hoopeston, Illinois.

F. McK.—*Requeening four Stocks and increasing to seven.*—If you can ensure the queens which you buy being young and vigorous you may do so. Otherwise, when you have by careful stimulation got one stock very strong divide it. When the stock has raised queen-cells make up nuclei, in which get the queens hatched and fertilised. Then increase your other stocks by division, and requeen at one operation.

CHIPS.—1. *Pattern of Hives.*—The success of bee-keeping depends more upon the man than the hive, but for convenience you had better make your hives on what is called the 'Combination system,' *i.e.* long enough to take several frames and sections behind, or to hold two stocks if needed—say twenty-four inches long inside. You need not make the floors moveable, as in so long a hive you can clean one part at a time, pushing the frames to the other end. 2. *Sections.*—We give preference to $4\frac{1}{4} \times 4\frac{1}{4}$; the one piece are best. 3. *Stock Foundation.*—We prefer that having the bases, as in natural comb. 4. *Wired Foundation.*—Please refer to our reply to Wm. Ditty in our number for February 15.

G. D. CLARK.—*Feeding light Stocks.*—If you have not much time candy will be more convenient for you, but for stimulative purposes we prefer syrup. Candy should break with a crystalline fracture, but the crystals should be small and softish. Raw sugar will make candy, but refined is best for all bee-foods.

J. L.—*Moving Bees, and increasing ten Stocks to fifteen at one Operation.*—Proceed as in the first place mentioned on page 53. You would then have ten stocks and ten swarms. You can then reunite five of the swarms without any difficulty. If you have the opportunity of doing so, swarm and move one strong stock first, and the rest eight days afterwards, giving queen-cells from the first to those stocks which you intend to increase from. You will thus save eight days of queenlessness in each of five stocks.

A. B. C.—1. The sample of sugar forwarded will be found suitable for feeding bees. 2. If there is sufficient distance between the rows, as the bees possess such a home-finding faculty, there is no objection to their being placed face to face.

J. P.—*Mouldy Combs.*—We should not destroy the combs. Rub them, when dried, with a soft brush, spray them with salicylic acid, and give them to the bees. If the combs are much soiled with dysenteric stains, act on the advice given in our 'Useful Hints.' 2. *Painting Hives.*—As the loss of a queen in her matrimonial flight is at all times a serious matter, it might be avoided by painting the fronts of your hives of a different colour, so as to assist the queens in marking the position and appearance of their homes.

SAM. GEO. S.—1. There was nothing exceptional in your bees disporting themselves as you describe, the day being so warm. 2. *Candy.*—Both the samples which you send are boiled to the degree of lump sugar, and are not fit for the purpose. Read reply to 'J. P.,' and try again. 3. *Stimulating.*—Read 'Useful Hints.'

WILLIAM BROWN.—1. *Books.*—Having fully mastered the instructions given in *Modern Bee-keeping*, we should advise you to proceed to the study of Cowan's *Guide-book*. 2. *Hives.*—Consult our advertising columns. The hives of those continuously advertising there may be depended on; but it would be invidious if we were to mention our personal preferences. 3. *Transferring.*—We should advise you let the bees swarm, and three weeks afterwards to transfer the bees, brood and combs from the skeps to the bar-frames. See 'Transferring' in *Modern Bee-keeping*.

J. P.—*Making Candy.*—Proceed thus—Put your sugar and water together in a pan and boil until a little, dropped on to a cold surface, sets hard, so that the finger does not stick to it. Then remove from the fire, add your flour (pea-flour is best), and stir until it is about to set, which you will easily see. Have ready some plates or saucers, with paper in them, and rapidly turn out your candy into them.

A COTTAGER.—*Broken Combs.*—If the combs are much broken down and displaced, it is best to transfer to a frame-hive. The transferring should be done under shelter or in a warm room. It is an operation requiring experience. Are you not within reach of an expert? See *Modern Bee-keeping*, under 'Transferring,' p. 59.

VIRTUOSO.—1. *Bees on Separate Stands.*—Experience shows that bees thrive better on separate stands, in open ground, than in a shed, or building, especially if the walls are of brick or stone, which prevent the sun's rays from reaching the hives. Bees never do well in a conservatory or greenhouse. Space forbids discussion of accepted facts. 2. *Pollen Gathering.*—Pollen-gathering in fine weather in February is not at all unusual. See 'Useful Hints.' 3. *Sugar.*—See our editorial on 'Sugar for Bee-feeding,' in our issue of January 15th, 1885 (vol. xiii. p. 19.) 4. *Amount of Food.*—The number of holes for stimulating must depend upon their size. In the *Raynor Feeder* the holes are small. From two to six will be sufficient, according to strength of colony. Practice alone will teach these small matters. The words which you quote—'Syrup given thick, as food, not for stimulation'—were intended to apply to colonies (often populous) whose stores were all consumed, or nearly so, and which, consequently, are threatened with starvation. We thought the words '*when required*' sufficiently explained the meaning of the sentence. 5. We consider the 'Pearl' sugar the better of the two.

Received:—Mason and Buchan; Captain Heysham's Lecture; Report of North-east of Ireland B.K.A.; A. Fish; R. Thorpe.

ERRATA.—In reply to Wm. Ditty, *for* two inches each end, *read* two in each end.

Annual General Meeting. *For* Mrs. Burkitt, *read* Mrs. Curreys.

Special Prepaid Advertisements.

For Sales and Purchases of Bee Appliances, Honey, Books, Pamphlets, Diagrams, &c., Exchanges and Situations.

Terms: Twelve words and under, Fourpence; for every additional three words, One Penny extra; no reduction can be made for continuous insertion.

THE SIMMINS' METHOD OF DIRECT INTRODUCTION. Enlarged to 32 pages. Price 6½*d.* Post free, of the Author, Rottingdean, Brighton; Messrs. NEIGHBOUR & SONS, 149 Regent Street; and Mr. J. HUCKLE, Kings Langley, Herts. (53)

BEE-KEEPING, Plain and Practical: How to Make it Pay. By A. RUSBRIDGE. 1*s.* 6*d.*, post free, 1*s.* 8*d.* Address J. HUCKLE, Kings Langley, Herts.

BEES for Sale, double-walled Hives, Association Frames. Warranted strong and healthy. Address J. GILBERT, St. Paul Street, Stamford. c 16

WANTED to Purchase, *The British Bee Journal* from commencement, in good condition. Apply to THE HON. SEC., Hants Bee-keepers' Association, Christchurch.

SALE, THREE STOCKS.—Standard Frame Hives. Address Mr. CARTER, 15 Ashburnham Road, Bedford. c 21

HONEY for Sale.—Pure, extracted; about 100 lbs. in bulk; will be put on rail for 9*d.* per lb. Address T. HISTED, Maresfield, Uckfield. c 22

BUTLER'S *Feminine Monarchie*, original Phonographic Edition, 1634, 1*l.*; Warder's *True Amazons*, 1716, 5*s.*; *Thorley on Bees*, 1765, 5*s.* Lot 1*l.* 5*s.*, or exchange. Address H. T. BLAND, Duffield, Derby. c 23

SIX HIVES, for Bottle Feeders; back and front double-walled; loose floor-board, sloped; dummies, roof, ten bars, porch, 9*s.* 6*d.* each; three unnailed, 20*s.* 3*d.* Address HARRY FISHER, Leighton Buzzard. c 24

SEVERAL GOOD STOCKS.—Bees in Straw Hives, 15*s.* each. Address CRISP, Halstead, Essex. c 25

WANTED, two 4 lb. Swarms of Ligurian Bees, to be guaranteed headed by pure Fertile Young Ligurian Queens, early in May. Applicants to state the prices required. Address THOS. BERRY, Victoria house, Barrowford, near Burnley. c 26

ENGLISH and LIGURIAN BEES for Sale in Bar-frame Hives. Apply T. HILL, Scotlands, Cannock Road, near Wolverhampton. c 27

FRENCH HONEYSUCKLE SEEDS, 3*d.* per packet, post free. Address Mrs. HONY, Bishops Cannings, Devizes. c 28

FOR SALE.—Five Stocks of Bees in Straw Skeps, 12*s.* each. Address JACKSON MAPLETHORPE, Billinghay, Lincoln. c 29

FOR SALE.—Nine dozen Sections, about 1 lb. each, in good condition. Two dozen at 9*d.*; free to London; or what offers for whole? Address, ANTELL, Piddletown, Dorset. c 30

FOR SALE.—A quantity of Pure Extracted Honey, in bulk or bottle. What offers? Address T. STICKLAND, Piddletown, Dorset. c 31

WANTED.—*Bee Journal* on the 4th and 20th of month. Address W. COWLEY, Stony Stratford. c 33

WANTED a Hundredweight of HONEY, good quality. Apply, stating price, to Mr. TIMSON, Clunbury House, Berkhamsted.

BRITISH BEE-KEEPERS' PRACTICAL NOTE BOOK. By THOMAS W. COWAN, F.G.S., F.R.M.S., &c. Crown 8vo, boards, 1*s.*; postage 1*d.* Indispensable for every Bee-keeper. Published by J. HUCKLE, Kings Langley; may also be obtained of all Hive-dealers.

DUNCAN'S GRANULATED SUGAR direct from the Refinery in 2 cwt. bags. Samples and Prices on application. Address ARTHUR HALL, Stony Stratford, Bucks. 3466

IMPORTANT!!

WANTED in March, a quantity of FIGWORT (*Scrophularia nodosa*) PLANTS. Address VICAR, Saint Breward, Bodmin, Cornwall. 3565

DON'T forget to read this Important Notice—**JOY'S** NEW ILLUSTRATED CATALOGUE of HIVES and BEE FURNITURE is now ready.

Sent post free per Penny Stamp. Address—

ALFRED JOY, The Apiary, Aylesford, Kent. 3304

Imported CYPRIANS & SYRIANS.

See December *Journal*. Remittances and Letters posted up to March 4th to LARNACA; March 4th to 19th, BEYROUT; after that, MUNICH, Germany. (94)

FRANK BENTON.

DEVON & EXETER BEE-KEEPERS' ASSOCIATION.

EXPERT WANTED.

He will have to inspect the Apiaries of Members twice a-year; he must reside in Devonshire, and must hold an Expert's Certificate of the British Bee-keepers' Association.

Testimonials, Salary required, and other particulars, to be sent to W. N. GRIFFIN, Esq., Hon. Sec., 4 Argyle Terrace, Weymouth, as soon as possible.

Further details of duties will be forwarded to selected Candidates.

Important Notice to Amateur Hive-makers.

Standard Frames in the Flat,

Tenoned and Morticed, requiring no block to make, with 17 in. solid Top-bars, per gross 10*s.*; with split Top-bars, per gross 12*s.* 6*d.* Can be used with Metal Ends.

SECTION CRATES,

Dovetailed, in the Flat, for 4¼ by 4¼ Sections.

To hold 7lb. per doz.	...	7/6	Sections & Dividers	...	3/9
,, 14lb. ,,	...	9/0	,, ,,	...	7/6
,, 21lb. ,,	...	12/0	,, ,,	...	11/0

No less quantities supplied, and we do not undertake to fill orders at above prices after March. *Terms Cash.*

E. M. HART & Co., The Longstock Hive Manufactory,
STOCKBRIDGE, HANTS. (90)

Will be sent post free on receipt of Two Stamps,

THE AMATEUR'S GUIDE IN BEE-KEEPING.

A. G. DAWSON,
ALMA BUILDINGS, MACCLESFIELD. (3210)

LIMNANTHES DOUGLASII.—Strong Plants, 6*d.* per 100, or 4*s.* per 1000. Address GARDENER, Stradbroke Vicarage, Suffolk. 3614

THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

[No. 166. VOL. XIII.] MARCH 15, 1885. [PUBLISHED FORTNIGHTLY.]

Editorial, Notices, &c.

IMPORTANT NOTICE TO SECRETARIES AND REPRESENTATIVES OF COUNTY ASSOCIATIONS.

The next quarterly Conference will take place on Wednesday, April 22nd. Notices of motions for this meeting must be forwarded to the Secretary of the British Bee-keepers' Association not later than Wednesday, March 25th.

THE BRITISH HONEY COMPANY.

We are informed that the Directors of the above Company have secured suitable premises at Columbia Market, on very favourable terms, through the kindness of the President of the B. B. K. A., who has done all in her power to ensure its success. The Directors intend commencing business in the course of the next few weeks, and they confidently appeal to all those interested in bee-keeping to support them by taking shares as soon as possible, in order that they may have all their arrangements made before the honey harvest begins.

The necessary expenses, though managed with strict economy, must be proportionately larger with a small capital than with one twice the amount. And as a result, a smaller price will have to be paid for honey to ensure even a small profit to the shareholders. With the largely increased production of honey, owing to the labours of the various Associations in spreading the knowledge of bee-keeping, we may safely prophesy that the honey harvest of 1885 will be much larger than in former years, unless we have an exceptionally bad season; and even in that case, it will compare favourably with the bad years of the past.

It has been a reproach against advanced bee-keeping that it is useless to show bee-keepers how to get large harvests, unless a market is provided for the surplus honey which they cannot sell retail.

Such reproach is now a relic of the past, and bee-keepers in the future will have no difficulty in disposing of their honey, though they must not expect to get as much per lb. for large quantities as for small. Still the price they will get will fully repay them, for the Company will pay ready money; and the price of honey, like that of everything else, will depend on the supply and demand.

LINCOLNSHIRE AGRICULTURAL SOCIETY.

GREAT GRIMSBY EXHIBITION.

We have pleasure in stating this Society will hold its Annual Show at Great Grimsby, on Wednesday, Thursday, and Friday, July the 29th, 30th, and 31st. A liberal schedule of prizes is arranged for the bee department, in the management of which the Society will, as usual, be assisted by members of the Lincolnshire Bee-keepers' Association. Grimsby is a large and important seaport, has direct railway communication with all quarters, has a population close on 30,000; near to which is situated Cleethorpes, one of the most salubrious bathing-places in Lincolnshire, with a population of several thousands. In such a field we imagine the members of the L. B. K. A. will not fail to make good play, especially in respect to honey sales, which, we understand, they are determined to make an important point. We wish the Society a successful meeting, specially in their bee department.

ASSOCIATIONS, AND SHOWS IN 1885.

The first Schedule of Prizes that has reached us this year comes through the hands of that staunch friend of bee-keeping, Mr. R. R. Godfrey, of Grantham. The schedule is issued by the Lincolnshire Agricultural Society, whose annual show is to be held this year at Great Grimsby, and who have requested the Lincolnshire B. K. A. to take charge of the Bee Department.

In looking back on the year 1884, and in seeking a reply to the inquiry as to that which had given the greatest impulse to progress in bee-keeping, the answer would assuredly be, the numerous shows that have been held in the various localities throughout the kingdom; and more especially the silent, yet direct, influence of the Bee Department of the International Health Exhibition. The result of all exhibitions and shows, whether they have occurred at the large annual shows held by the County Associations, or have been appendages to the more modest Horticultural and Floricultural Societies that are now held in almost every parish in the country, has been that apiculture has to some degree made a distinct advance in that immediate neighbourhood. The exhibition of bees and their homes, the explanations and the manipulations which are the general accompaniments, have served to quicken some minds, and have created in some visitors a desire to be more intimately acquainted with this interesting

pursuit. To take an example. A circular recently issued by the Cornwall B. K. A. contains the following statement:—'As an instance of the good effect produced amongst cottagers, it may be stated that one cottager in the county has, through the influence of the Association, been led to such a study of bee-keeping that his hives during the past season produced more than half-a-ton of honey, the whole of which was readily disposed at 1*s.* per pound.'

These exhibitions suggest new thoughts; they rouse some dormant faculty. A stone is cast into some placid, lake-like mind, and it is stirred to its inmost depths. A desire is begotten to reap those advantages which possibly are to be gathered from the prosecution of a new industry. Forthwith bees, hives, and appliances, are procured, and at once a new zest—a fresh motive power—is given to their lives. Our columns furnish us with many instances of this. In last October we received a letter from a correspondent, who says, 'I am only a cottager: I have taken nearly 900 lbs. of honey, all from supers, without touching the stock hives;' and he closes his letter with a very natural feeling of complacency, 'Come and see for yourself what a cottager can do. My apiary is open for inspection at any time.' This letter was transferred from our columns to those of the *Leisure Hour*, thus giving the above facts a world-wide circulation. Another cottager, 'working from six to six,' informs us that he had taken rather over 400 lbs. of honey nearly all in sections, and had sold it 'for the nice sum of 22*l.* 2*s.*'

Others, again, with more quickened mental powers, have a desire to become experts, to possess certificates of ability, to take a higher position as gardeners, &c., and to utilise their knowledge in extending their study of apiculture. We recently received from an expert who had been successful in gaining a second-class certificate an intimation that his ambition was to acquire also a first-class. Who can predicate the great advantages that will accrue to bee-keeping from the increase of such experts?

There are some, too, of a mechanical turn of mind, and these develope into hive-makers and purveyors of all descriptions of bee appliances; and thus a means of livelihood is secured of which they had not previously dreamed.

And if this be the result of local shows, we may surmise, *à fortiori*, that greater results have followed from the show that was held last year in the great metropolis. Who can say what effect may have been produced in the minds of the numerous visitors to the Bee Department of the I. H. E.? In many the sight of the industrious bees may have revived pleasant remembrances of the country and of rural pursuits to which for many years they had been strangers. The show, too, was visited by many clergymen, who are ever earnestly desirous of doing something which may prove beneficial to their parishioners; these may have beheld in bee-keeping an effective instrument in raising the minds of their people, in transforming their very being, and causing a happy change in their monotonous lives and humdrum thoughts, and so, by 'the expulsiveness of a new affection,' rousing them to a higher state of existence. We do not put forth bee-keeping as a panacea for all the troubles which affect the life of the agricultural labourer, but we verily look upon it as one of the means of 'stilling the wail of the village,' and of inspiring hope where at present there is but dull despair.

We trust, then, that the shows of the present year may be numerous, and attended by thousands, and that great and lasting good may result to all, but especially to the agricultural labourer.

HIVE CLUBS.

The battle of the hives still continues, and will continue despite all the efforts of the various Associations, and one of the chief reasons why the straw skep has its upholders is the increased cost of a workable frame-hive. It is perfectly useless pointing out to a cottager the advantages of the frame-hive over the skep unless we can devise some means by which he can obtain the more expensive hives without an immediate outlay far beyond his means.

It is a reproach against English farming generally that not enough capital is put into the land. A farmer with enough money to farm properly some 200 acres, takes one double the size, with the inevitable result that the land is starved. So in bee-farming it would be far better if the cottager began with one or two frame-hives, and then gradually converted his apiary from skeps into all frame-hives, proving to his own satisfaction the increased profit to be obtained from the latter. Of course, if he is a carpenter, or at all events can handle tools, the expense will be very much lessened; but nothing has redounded more to the credit of the skep than the numbers of cheap and bad frame-hives that have been sent out by unscrupulous hive-makers.

We have seen scores and scores of hives at absurdly low prices, warranted, of course, made for winter as well as summer use, which would have taxed the skill of a veteran bee-keeper to safely winter the bees. Letters have appeared from time to time in this *Journal*, showing how useful hives could be made out of the rubbish of a grocer's shop, but we have no records how these hives answered. Some years ago, we made a hive out of old egg-boxes; it was double-walled all round, and the total cost, including four coats of oil-paint, was only 2*s.* 6*d.* It has wintered bees successfully for some four years, but the making of it, labour, wear of temper, and tools, not being included in the cost, was one of the toughest jobs that we ever tried in carpentering. The wood was so full of knots and shakes that the plane had to be sharpened every few minutes, and though there is a certain amount of conscious satisfaction in looking at this hive, it is not likely to have a fellow. The labour not being reckoned, a well-made frame-hive, with cover and floor-board, ten frames, and dummy, will cost about 7*s.* 6*d.*, if made of seasoned, yellow deal, and if we have to buy such a hive from a maker, the price will be just double this.

It must always be a disputed point how best to advance the knowledge of successful bee-keeping.

Bee-tents and shows, lectures and inspections of of apiaries by experts, are all valuable in their way, but to supplement these we must help the cottager to purchase the necessary hives, and this can be best effected by starting hive clubs, by means of which members might be able to purchase their hives by paying so much per month, or when they had gathered their harvest. Arrangements might be made with hive-makers early in the winter to supply the necessary hives in the spring, and as they would not get paid till the summer an extra charge would have to be paid for interest, and in addition to this a small charge for insurance, and when this amounted to the sum sufficient to buy a hive it might be raffled for amongst the members.

The establishment of the Honey Company will meet the demand for a wholesale honey market. With the increased knowledge of bee-keeping, the supply of honey has largely increased during the last few years, and comb-honey which fetched 2*s.* and 2*s.* 6*d.* per lb. retail can now be bought for 10*d.* or 1*s.*, and it is extremely likely that the price will be even lower than this. Small quantities, of course, can be easily disposed of at a retail price in the immediate neighbourhood of the bee-keeper; but only a short time ago there was a despairing letter from a bee-keeper, who had some hundredweights of honey to dispose of, but could not find a market, though he offered the comb-honey in 2-lb. sections at 9*d.* per lb.; and having tasted many samples of honey, we can safely say that this honey was very good.

It is a well-established fact that the consumption of any article of food is largely increased when the price falls, so as to make it a necessary rather than a luxury; and if by means of the Honey Company we can buy honey from the bee-keepers at 7*d.* or 8*d.* per lb. wholesale, the amount consumed by the general public will be more than trebled than if the price was 10*d.* or 1*s.*

So that it behoves all of us, who want to see bee-keeping an industry, rather than a hobby, to do everything to increase the supply; and we think that this can best be ensured by some such plan as is sketched out in this article, rather than by holding honey shows, and giving seven or eight prizes to one bee-keeper, who is slightly in advance of his fellows.

COUNTY ASSOCIATIONS.

Reports of several of the County Associations are to hand and show the following list of members:—

Hertfordshire	404	Dorsetshire	173
Kent	376	Herefordshire	160
Staffordshire	355	Cornwall	151
Warwickshire	350	Gloucestershire	145
Buckinghamshire	339	Leicestershire	134
Norfolk	244	Bedfordshire	112
Derbyshire	236	Oxfordshire	103
Worcester	221	Huntingdonshire	91
Essex	213	Somersetshire	82
Surrey	211	Brecon	72
Hants and Isle of Wight	200	Cumberland	66
Devonshire	187	Shropshire	55
Wiltshire	184	Nottinghamshire	38
Cheshire	183	Yorkshire list not given.	
		Northants list not given.	

COUNTY REPRESENTATIVES

APPOINTED TO ATTEND QUARTERLY MEETINGS OF THE BRITISH BEE-KEEPERS' ASSOCIATION.

Buckinghamshire.—The Rev. E. Clay and the Rev. S. R. Wilkinson.
Cheshire.—Mr. Bush and Mr. Cotterill.
Cornwall.—Mr. Charles Kent.
Cumberland.—R. Ferguson, Esq., M.P.
Devonshire.—Rev. J. G. Dangar and Mr. W. Griffin.
Dorsetshire.—Mr. W. H. Dunman.
Essex.—Mr. F. H. Meggy and Mr. E. Durrant.
Herefordshire.—Mr. A. Watkins and the Rev. F. S. Stoke-Vaughan.
Hertfordshire.—Rev. A. Roberts and Mr. J. P. Sambels.
Huntingdonshire.—Mr. J. Linton and Mr. J. Edey.
Kent.—Rev. T. Sissons and Mr. G. Allen.
Staffordshire.—Mr. Percy Toynbee.
Somerset.—Rev. C. G. Anderson.
Surrey.—Captain Campbell and Mr. R. J. Hinton
Wilts.—Rev. W. E. Burkitt and Mr. T. Herbert Clarke.

The above list is taken from the reports and information furnished by Secretaries. It is to be regretted that the names of the representatives are omitted in a large number of the reports. We shall be glad to add others upon hearing from the Secretaries of those County Associations which are not included in the list.

REV. J. LAWSON SISSON'S APIARY AT EDINGTHORPE, NORTH WALSHAM.

The Rev. J. Lawson Sisson makes bee-keeping a 'hobby.' Generally speaking, people who have 'hobbies' are apt to be bores; but Mr. Sisson rides his hobby with a froliesomeness that is amusing without being tedious. A country parson, in charge of a small parish, has a certain amount of time at his disposal during which he can pursue some favourite occupation. In the varied occupations of husbandry and the pleasant pursuits of rural life he may find genial recreation and healthful exercise. Mr. Sisson finds both in bee-keeping. Having derived considerable amusement, and probably some profit, from his recreation, he desires that his neighbours, more particularly the cottagers, may embark in it to their own and the public advantage. In olden times, when honey had no rival in cane or beet sugar, bee-hives were common objects in the country. County historians incidentally reveal the attention which our forefathers paid to the preservation of bees when they state how many sextaries of honey, in addition to other dues, tenants had to deliver annually to the lord of the soil. In recent years scientists have shown that the neglect of bee-keeping has resulted in a far greater loss than the diminished supply of honey. Flowers and fruits would be more abundant if bees were more numerous, as those insects perform the process of fertilisation for a great many plants. Thus this subject of bee-keeping is one which has an interest for all classes besides the cottager.

Accepting an invitation to visit Mr. Sisson's apiary we found ourselves the other day at Edingthorpe, which is situate three or four miles from North Walsham, and a short distance from the sea. Edingthorpe Rectory stands next the public road, in grounds which are part garden, part orchard, and part in a state of nature. From the highway there is not a glimpse to be obtained of the apiary which is the subject of gossip in the country-side. Disappointment, however, is put to instant flight when you are shown into the rector's study, where you ex-

perience the first of a series of surprises which, in a judiciously conducted ramble through the premises, succeed each other like *tableaux* in a drama. In the study the evidences of the rector's favourite pursuit are overwhelmingly abundant. Imagine the contents of an editor's sanctum, of a small museum, of an artist's studio, of a chemist's shop, of a photographer's *atelier*, of a mechanic's workshop, and of a student's library, in somewhat confused combination, and many of the newspapers, natural history specimens, pictures, mechanical appliances, and books having reference to bees, and the reader can form some idea of Mr. Sisson's study. Here it is that, besides preparing his Sunday discourses, the rector pens his letters for the newspapers on bee-keeping, answers the queries of his numerous correspondents who want more detailed information, and executes some delicate mechanical work.

'Now we will go and see the bees,' says the rector; 'but stop, we will first look in at the barn—such a wonderful barn.' It struck us, however, as a very ordinary-looking barn, standing in an enclosed yard appropriated to pigs and poultry; and we began to wonder when we should see the bees. But on the barn-door being thrown open there was another surprise for us. A lot of planking, a carpenter's bench and tools, several hives in various stages of manufacture, and scores of what looked like lidless and bottomless flat boxes were revealed. Ask where the workman is gone, and the rector shows you that he is the craftsman who combines cheese-boxes with a bee-skep and 'supers,' and constructs model hives such as are figured in books on bee-keeping. The idea suggested by a peep into this barn is that the rector is making preparations for bee-keeping by constructing several hives; and we began to wish that our visit had been made a little later when he had proceeded further with his operations. Not having thus far seen any bees was calculated to strengthen such a conclusion.

'Now we will go into the garden and look at the hives,' said Mr. Sisson, who conducted us to the rear of the rectory where, on the grass, stood three or four wooden hives constructed after the American model. It was rather disappointing to be told, when one was approaching the hives with considerable circumspection, that they had only just been painted, were stood out to dry, and were consequently tenantless; and again one wished that the visit to Edingthorpe had been made a little later in the season when more bees were likely to be visible.

Our Edingthorpe parson is, as we have said, a humorist, and we suspect that he delights in treating his visitors to a series of surprises. Just as we were likely to get 'skeptical' (to adopt one of Mr. Sisson's puns) about the existence of the Edingthorpe apiary, we were shown into a small detached building, formerly used as a wash- or brew-house, against the windows of which were placed what appeared to be some boxes, covered over with sacking, &c. Projecting from the window-sills were some boards covered with bees which passed through a broad tunnel cut in the window-frame into the hive within. An examination of the bees at work in these hives can be made without the slightest fear of being stung. Removing the warm coverings from the superimposed structure of the hive, Mr. Sisson disclosed a series of the lidless and bottomless boxes stood on end and clustered together, and those at the back being fitted with glass, through which one could see thousands of bees busily moving to and fro over the marvellously constructed comb. This was very interesting; but the character of these hives and the various appliances scattered about the building rather strengthened than weakened the idea that Mr. Sisson was engaged in establishing an apiary, and that our visit was too early timed.

'Now we will take a walk down the garden,' said the rector; and as we approached that inclosure, some distance behind the rectory, we were thoroughly surprised at the scene before us. This was the apiary, resembling a miniature Swiss village, for the hives, about thirty in number, are of chalet-like pattern. The opening directions of the Mantuan in the fourth Georgic have been carefully followed by Mr. Sisson, namely,—

> 'First for thy bees a quiet station find,
> And lodge them under covert of the wind.'

The hives stand a short distance from a fence and grove, which shelter them from northerly and easterly winds. In front of the two groups of hives is a magnificent bed of Limnanthes Douglasii, rich with its creamlike blossoms, on which the bees love to linger. From this apiary the Corporation of Norwich might obtain a valuable hint. Each house is numbered, so that Mr. Sisson can keep a record of the doings and work of the inmates. Trusting to the knowledge of the temper of bees possessed by our guide we make a tour of these villages, Mr. Sisson removing the square wooden roofs of several hives so as to expose the 'supers'—the lidless and bottomless boxes before mentioned—in which, through a glass behind, the industrious insects can be seen at work, making comb or depositing honey. Before proceeding farther we may as well describe these hives. They consist of a main box, having double walls, with the interstices filled with chaff or cut cork for ensuring warmth to the inhabitants. Into this box are fitted a series of bar-frames, similar to school slate frames, from the top side of which pieces of artificial or second-hand comb are suspended. When a hive of bees has sent out a swarm to colonise, Mr. Sisson shakes the swarm into a zinc pail, pours it into the box containing the filled-up frames, and places a 'dummy' frame at the back to keep the bees in what he describes as the 'ready furnished apartments.' Generally they at once set about working on the artificial comb. As soon as they have fully furnished and stored the ground-floor, Mr. Sisson puts on a number of 'supers,' each fitted with a bit of artificial or cleaned-out comb. Access to these chambers is gained by the worker bees through a piece of perforated zinc placed over a large hole in the ceiling of the ground-floor. In a few days these supers are filled with honey, and are then removed by the bee-keeper to make room for empty supers, that the bees may continue their labours without finding the necessity to seek more room in another habitation. From the supers of one hive Mr. Sisson has obtained seventy pounds of pure honey in one season, leaving to the bees the main stock in the combs below. The greater portion of Mr. Sisson's stocks are the produce of two swarms he purchased several years ago. He has, however, a swarm of Italian bees, beautifully marked creatures.

A gentleman whom we met on our way to Edingthorpe, on learning the object of our errand, amused us by expressing his belief in what we have always regarded to be superstitious notions respecting bees. 'Bees,' he said, 'like to be praised and to live in harmony. If they are abused or disturbed by quarrels they will become angry, and will take flight.' As we watched Mr. Sisson's operations among the hives we thought there was some truth in this old belief. Gently, confidently, and almost affectionately, Mr. Sisson inspected colony after colony, picking up bees with his fingers, suffering them to alight on his hand, and commenting in pleasant terms upon the movements of the insects. 'Ah!' he exclaimed, as he held forth a bee on the tip of his finger, 'here's a pretty little fellow; a young bee; see how its stomach oscillates with its store of honey.' Unroofing one hive, Mr. Sisson expressed his opinion that it was not worth a penny, as he feared there was no queen, though the bees had been some time in possession of the ground-floor. Standing behind another hive Mr. Sisson tapped the sides of the basement with his hands, when the bees began to ascend into the supers. 'They imagine there is a whirlwind or a storm,' remarked Mr. Sisson. Hardly had he said the words than there issued a stream of bees from the hive buzzing angrily.

'Beat a retreat, or they will sting you,' was the warning; and, acting on that advice, we retreated quickly to the shelter of the grove, from which we observed Mr. Sisson, with veil-covered face and bare hands, adjusting the hive, at the same time exclaiming, in soothing tones, 'Mine are the tamest bees in the world. They are not like ——'s murderous bees.' We found presently that one lot of bees, a hive of hybrids, did not bear this gentle character, for another visitor well acquainted with the apiary gave them a wide berth. But some of these Mr. Sisson handled fearlessly. He has, however, no more fear of suffering from the sting of a bee than a person who has had the small-pox dreads another attack of that disease. He says that he has been so completely inoculated with bee-poison that it now affects him very little. To reach this comparative insensibility to the sting of the bee, he has had to undergo a considerable amount of pain and inconvenience.

Of course a cottager cannot procure, unless he has a turn for mechanics, such first-class hives as Mr. Sisson possesses; but Mr. Sisson shows the cottager how to adapt the ordinary skep to the system he practises. Let the cottager get an old American cheese-box from his grocer, stand it bottom upwards and fasten the common straw skep, costing 2*s.*, on the top. In the top of the skep let him make a hole, over which place a piece of perforated zinc just large enough to allow the worker bees only to pass through, and too small to permit of the upward passage of the drones and the queen. Over this place the lid of the cheese-box, with the rim downward, so as to fit on to the skep. Fasten to this lid (which has a square hole in the centre above the piece of zinc) a frame of three-inch deal, into which the American sections are to be packed. Over these put a water-proof roof, with holes for ventilation at the back, and the cottager's hive is complete. By this arrangement the cottager can remove the sections, which hold from 1 lb. to 2 lbs. of comb, from time to time, and substitute empty sections for them, without disturbing the main stock in the skep below. Many cottagers who have read Mr. Sisson's letters walk miles to study for themselves the construction of these hives; and as Mr. Sisson imparts information and instruction to all most readily, they are delighted with their visit, and encouraged to try bee-keeping on his system.

When we had spent an hour in watching the numerous colonies of bees in this apiary we thought we had seen all. But there was another surprise in store. Returning to the rectory we were shown upstairs into a spare bedroom, where we found large boxes stored with frames, to be placed in the main boxes, hundreds of sections (which are of simple construction and cost little) ready for use, and cupboards stored with sections filled with delicious honey-comb and jars of honey. An expeditious method of extracting honey from the comb is by means of the American slinger, which Mr. Sisson has in his study. Pieces of comb, with one surface of the cells sliced off, are placed perpendicularly in metal frames in a revolving apparatus, fixed in the centre of the cylindrical slinger. A handle being turned the apparatus revolves with great rapidity, so that the honey is thrown out of the cells by centrifugal force. When all the honey is thus ejected from that side of the comb the other side is treated in the same manner. The emptied comb is then available for further use by the bees, which, thus saved the labour of manufacturing their little store-houses, can devote the whole of their time to the collection of honey, to the profit of the bee-keeper.

We have said enough, we think, to show the character of the apiary at Edingthorpe and the enthusiasm of Mr. Sisson on the subject of bee-keeping; but if any person, gentle or simple, thinks he can pick up a 'wrinkle' as to the management of bees from an inspection of this apiary the reverend gentleman will, we are sure, be pleased to give him the opportunity.—*Norfolk Paper.*

ASSOCIATIONS.

SURREY BEE-KEEPERS' ASSOCIATION.

The sixth annual general meeting of the above Association was held in the large room of the Royal Arms Coffee Tavern, North Street, Guildford.

Present: Thos. Chapman, Esq. (Chairman of committee), Colonel Sandwith, Captain Campbell, Mrs. Maclear, Miss Birch, Messrs. Daw, Manton, Dashper, Lemare, Hewitson, and many other members and cottagers.

Mr. Ramsden (vice-president) being unable to be present, Mr. Chapman was voted to the chair.

From the report we gather that the number of members has steadily increased, and many cottagers have joined the Association, so that the total number is now 211, forty-one of which are cottagers, several of whom have adopted bar-frame hives, and all are gradually reforming their methods of managing their hives, and producing superior honey in consequence; but great difficulty is felt in disposing of the honey, and the establishment of honey companies will doubtless give a great impetus to bee-culture, and open up a more ready market for honey and wax.

The annual county show was held on the grounds, and in conjunction with the Royal Counties Agricultural Societies' Exhibition in Shalford Park, near Guildford, on the 24th and three following days of June, under exceptionally favourable circumstances as regards weather.

The silver medal of the British Bee-keepers' Association, and other prizes awarded by the judges, Messrs. Hooker and Abbott, were kindly presented to the successful competitors by the Earl of Onslow.

Local bee and honey shows, in connexion with fruit and flower shows and lectures on bee-keeping, have been held at Wimbledon, Albury Charter House, at Godalming, Camberley, Great Bookham, Chobham (twice), Croydon, and Cranleigh. Two fresh districts have been formed at Chobham and Cranleigh, and another is being established at Sutton, where great interest is being developed in bee-culture.

At Dorking, Reigate, Red Hill, and Haslemere, it is much to be desired that branch districts should be formed, and that some gentlemen in those beautiful localities may be induced to accept office of district secretaries, and thus extend the operations of the Association more generally in the county.

At the Albury show his Grace the Duke of Northumberland visited the bee tents, and, with her Grace the Duchess, has kindly allowed their names to be added to the list of patrons of the Association.

The manipulating tent of the Association has been kept in constant demand, and has proved a most efficient means of extending the knowledge of improved methods of bee-culture.

The want of a qualified county expert for the members is much felt, and it is hoped such may soon be found willing to undertake the duty. The continued want of a secretary is much to be regretted; and until such an officer is obtained it is impossible for the Association to expand as it ought, and the committee hope that such may soon be found to help forward the work so well begun in 1879.

The treasurer's financial statement is submitted, showing the cash in hand to be 5*l.* 7*s.* 5*d.*, and stock to the estimated value of 32*l.* 7*s.*, with no outstanding liabilities.

The report and statement were ordered to be printed and circulated.

The office-bearers and committee were re-elected, E. Daw, Esq., of Godalming, being appointed treasurer, *vice* Captain Campbell, who becomes hon. secretary.

It was resolved that the next county bee show for 1885 be held if possible at Sutton, Surrey, and that a

new district be established there, and a local district secretary be appointed.

A letter was read from Captain Allett of the Royal Military College, York Town, offering to act as hon. local secretary for York Town and Camberley district, which was cordially accepted with the best thanks of the meeting to Captain Allett for his kindness.

Captain Campbell and Mr. R. J. Hinton of Croydon were appointed to represent the Association at the quarterly meetings of the British Bee-keepers' Association.

The meeting then concluded with a vote of thanks to the Chairman, and after tea and coffee were served a conversazione was held. Captain Campbell read a paper by the Rev. E. Bartrum on 'The Hive for the Busy Man,' and exhibited and described 'the Stewarton hive.' An interesting discussion followed, after which the company left about six p.m.

HANTS AND ISLE OF WIGHT BEE-KEEPERS' ASSOCIATION.

The third annual general meeting of the members of this Association was held February 19th, 1885, in Southampton, at the rooms of the S.P.C.K. There were present—Mrs. Shears, Mrs. Bellairs, Miss Palmer, Miss Grimes, the Revs. J. Pemberton Bartlett, W. E. Medlicott, H. W. Bull, P. P. Izard, R. Parker, Col. Farquhar, Commander Suckling, R.N., Messrs. James Jee, Henry Daniell, W. H. Baigent, H. F. Hart, W. T. Joyce, A. Roots, T. Giles, E. H. Bellairs, &c., &c. The annual report, balance-sheet, and accounts were discussed and unanimously adopted; the President, Vice-Presidents and officers were re-elected, with a special vote of thanks to the Hon. Sec., Mr. Bellairs, for his many services to the Association; and the following gentlemen were elected to serve upon the Committee for the current year:—Rev. Walter E. Medlicott, Rev. J. Pemberton Bartlett, Rev. Arthur B. Cotton, Rev. H. W. Bull, Rev. J. B. Robinson, Rev. P. P. Izard, Rev. R. Parker, Commander Suckling, R.N., Frank J. B. Beckford, James Jee, and W. H. Baigent.

The question of Standard Sections was fully discussed, and a resolution unanimously passed, which will be found elsewhere. Allusion was made to the approaching marriage of the President of the Association H.R.H. the Princess Beatrice, and the Hon. Sec. was instructed to communicate with the Vice-Presidents as to the suitability of setting on foot a fund to mark their appreciation of the happy event. The meeting terminated with the usual vote of thanks to the Chairman, the Rev. W. E. Medlicott, for presiding.

NOTTINGHAMSHIRE BEE-KEEPERS' ASSOCIATION.

At a committee meeting held at the People's Hall, Nottingham, on Saturday, March 7th, at 3 p.m., present Mrs. J. Wotton, Messrs. S. Godfrey, Felstead, Fisher, Bell, Scattergood, Beeson, and E. Ferneyhough, hon. sec. Mr. John Beeson in the chair. The minutes of the last meeting having been read and confirmed, the hon. sec. submitted his report and statement up to date, showing a balance in hand of *8l. 9s. 9d.*; and also reported that at present the Association numbered thirty-eight paid members, and that from the census forms returned by fifty-six bee-keepers in the county, it appeared that on May 1st, 1884, there were 199 hives, and on September 1st, there were 286 hives. The increase of skep-hives being seventeen only, while the increase of frame-hives was seventy. The total amount of honey taken from the above number of hives was 3857 lbs., or an average of 19¼ lbs. per hive.

It was proposed by Mr. F. Fisher, and seconded by Mr. Wm. Bell, 'That the offer of Mr. Huckle, secretary to the B.B.K.A., respecting hire of bee-tent for the season, be accepted, and that the expenses be guaranteed by the committee.' (Carried.)

It was proposed by Mr. F. Fisher, and seconded by Mrs. J. Wotton, 'That the bee-tent be sent to Mansfield, Hucknall-Torkard, Farnsfield, Newark, Retford, Carlton, Radcliffe-on-Trent, Willoughby, and Stapleford, in connexion with the above local Flower Shows, and that 10*s.* be offered by the Association to each Show as a prize, to be arranged as the District Secretary and Flower Show Committee may think suitable.' (Carried.)

The matter of the annual show in connexion with the Notts Agricultural Society was then brought forward, and it was agreed that it should stand over for negotiations, and report at the next committee meeting.

It was announced that A. R. Calvert, Esq. had consented to deliver a lecture on bee-keeping (with practical illustrations) at Fairsfield, on the 23rd inst.

Mr. Bell, of Annesley, undertook to deliver a lecture at Hucknall-Tolkard at a suitable date.

Mr. Fisher, of Farnsfield, also undertook to deliver a lecture at Willoughby.

The hon. sec. was instructed to pay the affiliation fee to the B.B.K.A. The proceedings closed with a vote of thanks to the chairman.

[The bee-keepers in Nottinghamshire will be pleased to see that through the exertions of the new hon. sec. the Association is getting into working order, and we trust that they will give him all the help he may require.—Ed.]

GLOUCESTERSHIRE BEE-KEEPERS' ASSOCIATION.

In presenting their Report, the Committee are pleased to be able to congratulate the members on the success of their first year—the Association, which was only started in April, being able now to reckon 145 members. The Local Secretaries are confident that many will add their names to the list of subscribers during the coming season and find that those who have already done so are thoroughly satisfied with the benefits which the Association has been able to confer upon them. Lectures on bee-keeping have been given in several large towns, and have been well attended. All members have been entitled to the use of *The British Bee Journal* on loan for two days, and, with a few exceptions, the Journals have been forwarded promptly. The Association held a large show of honey, hives, bee appliances, &c., at the Gloucestershire Agricultural Society's Meeting at Stroud; they also erected a bee-driving tent, and gave driving exhibitions at short intervals during the three days of the Meeting. The show was very unsuccessful financially, but was the means of securing several new members. The prizes offered for competition by the British Bee-keepers' Association were awarded as follows: Silver medal, C. Marshall, jun., Cheltenham; bronze medal, E. J. Burtt, Gloucester; certificate, Jos. Cook, Fairford. The Association also erected a bee tent at Winchcomb, Latton, and Stratton Flower Shows. An expert travelled round the county in the autumn to assist members with their hives'; this cost the Association the sum of *9l. 4s. 0d.*, but appears to have been especially appreciated.

The Committee wish also to acknowledge their appreciation of the valuable assistance given to them by Rev. H. Peel, Rev. E. Bartrum, Rev. V. Moyle, Rev. W. E. Burkitt, and Mr. Huckle, to Mr. Slade for the kind use of a room for the committee meetings, and to Mr. C. Brown for his professional help.

The Committee much regret to announce that Mr. W. Zachary has been unavoidably obliged to resign his post as hon. sec., and feel assured that the Rev. J. Turner will carry on the work to the advantage of the Association.

THE EXPERT'S REPORT.—I last night arrived home after thirteen days spent in calling on various members of your County Association. During my journey, I called on about sixty-three members of various places—from Tewkesbury to Bristol—examining upwards of 200 hives, the larger proportion of which were of course straw skeps; but I was very pleased to find throughout an earnest desire on the part of all the members to improve their method of management, and in many cases a bar-frame hive or more had been purchased, and the contents of straw skeps transferred, or the bees driven and put on foundation during the last two months, showing that the Association had by its work saved the lives of many thousands of bees, and at the same time put their owners in a fair way of making them return good profits during the next season. I may add, I found evidence that the Secretary and Local Secretaries had been hard at work driving for the cottagers, instructing and helping them, and doing much to spread the necessary knowledge for the successful management of bees, under advanced systems. I may suggest, I found an inclination to give too many frames of foundation to driven bees, and too much room for wintering; also that feeding had hardly been rapid enough for the late season. But, on the whole, I think the Association has every reason to congratulate itself on the work done during its first year of existence. Allow me at the same time to express my thanks for the kindness and courtesy, as well as the hospitality, of the various members on whom I called.—C. BROWN, *Expert, Northwood Apiary, Bewdley, October* 17, 1884.

The balance-sheet shows that the receipts and expenditure have well-nigh equalled each other.

OXFORDSHIRE BEE-KEEPERS' ASSOCIATION.

The annual exhibition of honey, wax, hives, and appliances connected with bee-culture, of the above Association, will take place on Thursday, July 30th, in the private garden of the Warden of Wadham College. The exhibition will take place in conjunction with the Oxfordshire Horticultural Society, and a large gathering is expected.

COUNTY ARMAGH BEE-KEEPERS' ASSOCIATION.

In presenting this, their last Annual Report, the Secretaries of the late County Armagh Bee-keepers' Association believe that they have good ground to congratulate their members on the progress made during the three years of the existence of this society. There seems also every reason to believe that the new society to which we now belong will be stronger and more helpful to the County Armagh Bee-keepers than the old society could ever have been. Our place has been that of a pioneer Society, and in that capacity we believe that we have done good work. The chief results that we have accomplished have been the circulation of the *Bee Journal*, and the purchase of a bee-tent which has been paid for entirely out of its own earnings.

At our last yearly meeting the possibility of extending the field of the Society was discussed, and it was suggested that it could be more easily worked from a larger centre, such as Belfast, where committee and general meetings would be more accessible, and where there would be a greater number of members with the will and leisure to attend to the working of it. When a society was about to be founded for the counties of Down and Antrim, your Secretaries laid these views before the promoters of it, who kindly listened to and ultimately adopted the suggestion. The members of our Society having agreed to amalgamate with the new Society, it was founded under the name of the 'North-East of Ireland Bee-keepers' Association,' and its success during its first year seems a sufficient justification of the course adopted. In bidding you farewell, your Secretaries beg to thank you for the warm support which you always afforded them during the three summers when there was not much honey, and they hope that you will always as loyally and cordially support the new Society who have begun under the good auspices of an abundant honey harvest. They would conclude by especially pressing upon you the importance of attending the meetings and shows of the Society, and of letting your wants and wishes be known through your district Secretaries.

H. W. LETT, M.A., }
GEO. GREER, } *Hon. Secs.*

NORTH-EAST OF IRELAND BEE-KEEPERS' ASSOCIATION.

Your Committee have much pleasure in presenting their first annual report. Although the Society is only about seven months in existence, there are over ninety members; of these however, about forty were previously members of the County Armagh B.K.A.

Shortly after this Association was formed under the name of the Antrim and Down B. K. A., a proposition was made by the County Armagh B. K. A. for the amalgamation of the two Societies under the title of the North-East of Ireland Bee-keepers' Association, thereby giving more strength. After a consultation held at 41 Waring Street, this was agreed to.

At the time of amalgamation, the County Armagh B. K. A. consisted of sixty-nine members nominally, but of these only about thirty-eight had paid their subscriptions, so that only these names were put on the books of the new Society, and although the members who had not paid were written to, we are sorry to say very few responded to the call.

Owing to the Committee of the Newtownards Horticultural Society refusing to allow the bee tent into their Show, your Committee arranged to hold a Bee and Honey Show in Belfast. This took place on Friday, 29th September, in the Botanic Gardens, the directors of which kindly consented to allow the bee tent to be erected there. The Exhibition Hall was procured, and proved a very suitable place for exhibiting the honey and various bee-keeping appliances, and for the delivery of a lecture in the evening. There was a splendid show of honey, of a quality we believe inferior to none in the United Kingdom. The show of appliances was very fair, in the most complete collection of which Mr. Lonsdale and Messrs. A. Cross Bryce & Co. carried off equal first prizes. In the evening Mr. Wm. N. Griffin, Hon. Sec. Devon and Exeter B. K. A., gave an interesting lecture to a large and influential audience.

The Treasurer's balance-sheet, although perhaps not so much on the right side as many would like, shows, nevertheless, that the Society is in a good condition. Three very interesting essays have been read—one by Rev. H. W. Lett, M.A., on the 'Honey Bee;' one by Mr. Wm. Ditty, on 'The General Management of the Apiary;' the third by Mr. Paul M'Henry, on 'A Bee-keeper's Experience.' It is to be regretted that more members did not take advantage of these to learn more about bee-keeping.

LEICESTERSHIRE BEE-KEEPERS' ASSOCIATION.

A committee meeting was held at Leicester on 28th February. Ten members of the Committee were present, and the Rev. Canon Willes was voted to the chair. After the confirmation of the minutes of last meeting the expert question came on. Only thirty-one replies had been returned to the circular sent to the members; of

these replies fifteen were in favour of employing an expert and sixteen not. The sums promised towards the expert fund were manifestly so inadequate that Mr. W. S. Pridmore's proposal, 'That the expert question do stand over for the present,' was seconded by Mr. J. W. Bickley, and carried unanimously.

The prize schedule was then drawn up very much on the lines of previous ones, and the meeting closed with the usual votes of thanks.

A Noble Lord on Bees.—Earl Cowper, K.G. (who is also President of the Bedfordshire B.K.A.), in his presidential address to the Herts Natural History and the Field Club at Watford, on Feb. 17th, 1885, after referring to rats, partridges, ants, &c., said—'I turn to the bee. My studies in natural history have, as I have told you, been few and desultory. But of the few books which I have come across upon the subject, there is one of absorbing interest. I mean *Huber on Bees*. I have a great fancy for this book; perhaps, because it is one of the first I read of the kind. It is rather an old book, and I have no doubt that its information would be very stale to most of my present audience, and that a great deal has been discovered since. But I am sure no book that has ever been written upon the subject carries the reader along in the same manner. Every detail is confirmed by experiment, and every experiment is related in the minutest and most circumstantial manner; but you often feel as if you were reading, not an account of the habits of insects, but a chapter from a history of the middle ages, or a ballad, or a novel. There is a description of a fight between two queens in a hive, with all the other bees standing round in a circle which is as spirited as the fight between Herminius and Manilius in Macaulay's *Lays*, or as the tournament in *Ivanhoe*. The account of the reception of a new queen and her passage through her dominions, with her subjects drawing themselves obsequiously on one side or presenting their tribute of royal honey, is like a scene from *Kenilworth*. The behaviour of the bees when they find it necessary on certain occasions to oppose the destructive instinct of their monarch, the respectful but firm manner in which they restrain its movements, never using their stings, and preserving as far as possible the outward forms of reverence, reminds us of some of the noblest and most patriotic of our ancestors. Then there is a most graphic description by an eye-witness of a massacre of the drones, such as yearly takes place in every hive—the gradual increasing commotion among the working bees; the insults offered to the drones in numerous individual instances; the growing alarm of the poor drones, who gradually collect together at the bottom of the hive; the entry of the working bees among the unarmed crowd; the rapid and indiscriminate slaughter; the ghastly calm which succeeds; and the subsequent removal of the dead bodies. One fancies oneself reading of the Sicilian Vespers or St. Bartholomew's Day. I will not detain you by an account of the emigration of the surplus population or the founding of new colonies, for these are familiar incidents. I will only that say I wish all our emigrations were conducted in the same orderly manner, and that it was as easy to remedy overcrowding among men as among bees.

'Well, ladies and gentlemen, these experiments and observations give rise to strange and serious thoughts. Even when read in a book, and much more of course when actually seen, each event which I have described appears as the result of deliberate will or momentary passion in the actors. And yet if we follow the history of a bee-hive for some continuous time, or if we observe different bee-hives at the same time, we see that all these things which appear as the result of individual passion occur in a uniform order and by a fixed rule. Before every swarm, except the first, the queen, who is to lead it, tries desperately to destroy the young queens in their cells, and is respectfully but firmly prevented by her subjects from doing so. Every year, and almost on the same day, there is a massacre of the drones in every hive.

'After considering these things I felt almost inclined to agree with Mr. Buckle that human history may, perhaps, also be reduced to fixed rules, and that the emigrations and conquests, the rebellions and the wars, the massacres and the changes of constitution in different countries, which compose that history, may occur in accordance with some well-ordered plan, which we do not see far enough to explain.'—*Herts Mercury.*

Turning the Tables; Bees eating the Sparrows.—The advice in the last *Journal* to shoot the sparrows to prevent them eating the bees, called to my mind that I had heard the daughter of a bee-keeper (who lives within five miles of Northampton) say her father always fed his bees during winter with roasted sparrows. I will try and obtain a few particulars about these sparrow-eating bees, and if of any interest will forward them to you.—*Member Northampton B. K. A.*

Pop-holes.—An esteemed correspondent suggests the following causes for the occurrence of pop-holes in sections:—'The bees are too few, or the super is too hot or cold, or the honey glut was suspended, or a batch of brood hatched simultaneously; the queen laid largely in a few days, and consequently stores were largely consumed suddenly, and comb-building was suddenly suspended, and the combs finished off and never taken to again.'

Insect White Wax.—In the west of the province of Ssu-chuan (the province bordering on Thibet) grows the insect tree, an evergreen with thick dark leaves. In March and April pea-shaped excrescences or galls are found attached to the bark of the boughs, and in each of these galls there is a swarm of brown creatures, each with six legs and a pair of club antennæ. In the east of the province, on the other hand, grows the wax tree—usually a stump about six feet high, with numerous sprouts rising from the gnarled top. In the early part of May the insect carriers are busy carrying the insects from the insect trees in the west to the wax trees in the east. Packets of galls are suspended close to the branches, a few holes are pricked with a needle in the packets, and the insects creep rapidly up the branches to the leaves, and excrete the wax. After ninety or a hundred days the wax is about a quarter of an inch thick; the branches are lopped off and the wax removed by hand. The Chinese then place the insects themselves in a bag, squeeze them until they have rendered their last drop of wax, and finally throw them to the pigs—a depth of ingratitude in which, alas! 'that Heathen Chinee is *not* peculiar.'—*Pall Mall Gazette.*

Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of January, 1885, amounted to 804*l.* [From a private Return supplied by the Principal Statistical Department H.M. Customs to E. H. Bellairs, Wingfield House, Christchurch.]

SPRING MANAGEMENT.

(*Continued from page* 82.)

During April many opportunities will have been offered for inserting additional combs or foundation, until at the beginning of May we have all colonies (including the

weaker ones now united), in proper condition for work, with the bees crowded on not less than nine combs. It may be said that I am setting up an impossible standard for so early a date, but it must be borne in mind that in very many districts the first flow of honey is lost simply because the bee-keeper thinks his stocks cannot be brought into condition by that time, or is unable to do so; using the said honey to build up colonies, whereas they ought to have been strong enough to store it. Just consider that your bees are to be ready for the supers by a certain date, according to your locality, and make up your mind that if possible it shall be done. On no account, however, think to have them strong at the desired time, by the too-rapid spreading of the brood-nest, or an error will be committed in that nearly all the working force will be engaged in providing for an immense number of young bees, and a still larger number in the larva state. Bees will be obtained it is true, but during all the early part of the season the balance of power will be on the wrong side. Strive rather to start with colonies in good 'heart,' and during the whole time of preparation keep the combs well crowded with bees; if necessary, unite, to obtain the desired end, and when the point is once gained less difficulty will be experienced, as year by year one is taught by practice.

If the owner has been careful, none of his stocks should be so crowded with stores as at any time to necessitate extracting during the early spring months to give the queen room. Such a course is both injurious and unnecessary, and if persisted in, shows plainly that the operator's system is greatly at fault, as he ought to have been able to obtain hives full of bees by the beginning of May, with combs so crowded with brood that the entire number do not contain more than about three pounds of syrup, besides the usual store of pollen.

As to artificial pollen, the bee-keeper will have to study his own locality that he may know whether such is really necessary or not. The probability is, that in nearly all districts the bees will have sufficient bee-bread stored over from the previous autumn to keep them going until the middle of March, when a fresh supply will be coming in,—in some cases much earlier; but on the whole I do not suppose it is ever really necessary to offer pea-flour while bees can fly freely. It is quite a different thing when the hives are nearly full of brood, and a long spell of cold weather occurs. Then it is absolutely necessary to supply such food (together with water) right in the hive, or much of the young brood will perish. In this case the enamel sheet will give water, and the pea-flour should be mixed up thoroughly with the dry sugar at the rate of a ¼lb. to each 3lb. dummy-feeder.

After all, there is a great pleasure to the beekeeper in being able to watch the bees humming merrily around the flour, scattered on shavings or chaff, placed in some sunny spot, and, excepting a little waste, no harm will come from it if not begun until February has gone.

During March and April many colonies will be found queenless, and often the first thought is that a good opportunity offers itself for giving imported or other valuable queens. But instead of buying queens at this early date, even supposing a dealer has them to spare, the bee-keeper will do far better to unite such at once to other hives, to the ultimate benefit of both bees and master.

In uniting it is not always either convenient or desirable to remove the whole colony from one stand to another at a distance, or many lives will be lost which we cannot afford. In that case select two with queens near together; remove one on her comb with attendant bees (also another comb or two of bees if desired) and insert in the queenless lot; then let the remainder of the bees be given in a similar manner to the adjoining one. Remove the empty hive quite out of sight, with all its belongings, and the one in which the bees are now united must be placed half-way between the two stands lately occupied. Place a board slanting from the ground up to entrance, so as to attract the flying bees to one common alighting-board, thus also making the hive appear strange to both lots. It is preferable, on all occasions where possible, to carry the combs and bees of that colony having a queen to the hive which is queenless.

In all cases of uniting by intermixing combs of bees, allow plenty of room for inserting each alternate comb, to avoid crushing; and previously remove all clothing from each hive, and, above all, part the combs so that no bees hang from one comb to another, thus permitting the full light of day to penetrate everywhere; and when these combs are drawn together again, with stranger bees and combs between, there will be no inclination to fight, providing the operator has not been clumsy in his manipulations. Another important point to be borne in mind is this: whenever a queen on a comb with bees, or several combs of bees, are to be given to another colony, these must be carried in a box or ordinary hive *without* a lid. I have never used a comb-box with a closed top; and possibly it may be just here that some have failed in following my 'Direct Introduction.'

The subjects next coming under consideration belong to summer management, and will be given under separate headings in the following order:—Queen Raising, Swarming, and Management of Supers.—S. Simmins.

HONEY JUDGING AT SHOWS.

I think that the honey-producers in the United Kingdom owe a debt of gratitude, and should accord their hearty thanks, to the Rev. J. Lingen Seager for his practical paper 'On Honey Judging at Shows.' Its utility was fully demonstrated in the discussion afterwards. Few men have the acumen, combined with moral courage, to point out the great variety of ways in judging honey. Special reference was made to Lincolnshire honey. I exhibited honey of my own, and some of Mr. Brown's at South Kensington in 1882. The liquid took nine prizes; but, oh, the granulated, by being left in a cool room! I took some to Knightsbridge Show the following year, with a similar result; but Mr. Brown and I still continue to keep our honey the same. No doubt it will now be frequently asked, Does honey deteriorate in quality when it granulates? I venture to predict that the time is not far distant when the public will more appreciate granulated extracted honey.

I hope, after mature discussion, a code of rules will be formulated for the guidance of judges, and information of exhibitors as to the quality of honey and the best mode of its preparation for exhibition, from a commercial point of view, so as to successfully compete with foreign honey, and educate the public to purchase English honey, the supply of which is in excess of the demand, and the market price of it should be quoted.—R. Thorpe, *Langrickville, 25th Feb.*

HONEY COMPANY.

A number of small bee-keepers have asked the question 'Will the Honey Company buy of the shareholders *first?* if so I will take a few shares.' Now, sir, this, to my mind, is a very important question especially to working men, and if the object of bee culture is to improve, and help those who need an answer in the affirmative would strengthen the hands of the Directors and cause great numbers to take a few shares each as far as their means would allow. Such persons as the above do not understand investing in companies, but they *would* understand a direct market for the produce of their bees.—W. D.

[The reply to the above will be found in our Editorial, 'The British Honey Company.'—Ed.]

THE COMING SEASON AND THE CULTIVATION OF HONEY AND POLLEN-SECRETING PLANTS.

The busy time of the bee-keepers is at hand. The preparation in hives, foundation, sections, &c., is being seen to and put in a forward state in readiness for our anticipated swarms and honey. In the general preparations I hope that the sowing and planting of bee-forage for our pets will not be overlooked. I feel convinced that before long this subject will receive more attention among bee-keepers than it does at present, and there are many reasons why it should do. With the month of July, the honey harvest closes; but I see no reason why it should not (at least in many districts) be extended until the commencement or middle of October. There are many flowers adapted for such a purpose coming into bloom in June or July, and remaining until the end of October. On this point I am at one with Mr. Dobbie. That gentleman has enumerated some very good honey and pollen-producing plants in the three issues of the *Bee Journal*; but I feel convinced that their number is legion, and that by making experiments the number of pollen and honey-secreting plants may be extended a thousand-fold, and many first-class bee-forage plants brought to light that are at present known nothing about. As an instance of this idea I may mention that among the bee flora spoken of I have not seen the Coccinea or the Moschata named. Those are two first-class bee plants, and like the French honeysuckle produce large quantities of bloom which continue from July to October. I shall make all the experiments I can the coming summer in discovering such useful bee-plants as those already known, and I trust that others will do all they can in the same way. There is, however, in sowing seeds, a difficulty to be provided against, viz., bad seed. Many are disappointed owing to obtaining a pennyworth or so of seed from local tradesmen, who in too many instances have a large quantity of seed on hand perhaps several years old, and owing to having been kept in the damp have germinated, and are therefore useless. To spend several shillings on as many kinds of seeds from large nurseries and seed-growers is beyond the reach of many bee-keepers. To obviate this difficulty, I have made arrangements for large quantities of the best bee-plant seeds including those above named, and shall be happy to supply any of your readers with a list according to my advertisement in this *Journal* on another page.—W. HOLLINS, *Tillington Avenue, Stafford.*

HANTS AND ISLE OF WIGHT BEE-KEEPERS' ASSOCIATION.

STANDARD SECTIONS.

At the annual general meeting of this Association held in Southampton, Feb. 19, 1885, at the rooms of the S.P.C.K., this subject was fully discussed, and the following resolution was declared carried, *nemine contradicente*, by the chairman:—'That this general meeting of the Members of the Hants and Isle of Wight Bee-keepers' Association declares that it is of opinion that the adoption of any standard or common size for section by the British Bee-keepers' Association would be calculated to inflict injury upon the the interest of bee-keepers, by preventing that variety of form and choice so essential in the honey trade, without offering any corresponding advantage.'

AN APPEAL FROM OXFORD BEE-KEEPERS.

I, and many others residing in Oxford, would be greatly indebted to you if you would insert the following, which appeared in the *Oxford Guardian* on the 11th ult.:—

'Several gentlemen interested in the subject of bee-keeping having requested me to call your attention again to the Oxfordshire Bee-keepers' Association, which has, and I believe in future will do, an excellent work in the county. I take this opportunity of mentioning that the Society might be greatly expanded, and the knowledge of humane bee-keeping increased, if a local committee was located in the city, so that the labouring classes whose interests the society should have at heart as well as the cottagers in the country could be furnished with the necessary literature and a place to meet, where an extractor, a good one mind, might be used. Everyone in the present age is aware of the benefits accruing to a properly managed system of bee keeping and a meeting place where bee-keeping and its cognate branches could be discussed in all their details would be of the greatest utility to amateurs. I sincerely hope this interesting study of those useful and profitable insects may be actively taken up by those who care to exert themselves to promote thrift amongst the working classes.'

I think it is exactly what is wanted at the present time amongst us, and I hope the Rev. F. Dillon, our secretary, may catch sight of it. It would a great help to working men, who, I am sure, sir, you will agree with me, ought to receive a little attention, and it would assist them to study these curious, and most interesting, when once known, insects. Many would make a start at the present time, but they are horrified when they see the many catalogues put forth with announcements that this and that is necessary if you are to keep bees successfully. So I hope this appeal may find some issue, and that many of our labourers may find enjoyment in bee-keeping more profitable than loitering at street corners and sitting in public-houses.—A BEGINNER, *Oxford, February* 21.

[We should advise our correspondent to communicate directly with the Rev. F. C. Dillon, the hon. sec. of the Oxfordshire Bee-keepers' Association, Enstone.—ED.]

THE PRICE OF HONEY.

Some correspondence recently appeared in these columns relative to the prices asked for honey; but while deprecating the unreasonable sums generally wanted by amateurs, none of the writers have proposed a price per lb., to be considered as a reasonable basis upon which to conduct wholesale transactions.

At present we are passing an important stage, and though many bee-keepers have done themselves harm by asking exorbitant prices, it appears that dealers are endeavouring to press to the other extreme, and offer the producer prices which are quite unremunerative, and such as he ought not to accept if he studies his own interests and those of the bee-keeping community.

Now, while it is true that amateurs will always constitute one—but an irregular—source of supply, it will be the large producers who must guide the market; and should the dealer attempt to bring prices down below the proper limit, he will be only injuring himself, as he should know that the supply cannot last, for the simple reason that the production of honey will cease to be profitable. But before the present development has too far advanced to the detriment of our industry, let us consider what shall be a fair market value for our honey.

In America (United States), where there is more competition than here, and prices have long since settled down to the proper level, and where, too, most bee-keepers are favoured with vast areas of honey-producing plants and trees, and on the whole, with a more certain climate, we find the price of comb-honey from 8*d.* to 9*d.* per lb., while that of extracted is about 4½*d.* wholesale. Now, considering the shorter duration of our season, uncertain climate, and our comparatively small patches of honey plants, necessitating the keeping of fewer colonies for a given area, and hence greater expense in producing a stated quantity, I maintain that we ought to obtain at

least half as much more than the American quotations, especially when we also consider English honey is generally conceded to be superior to the imported article.

And, moreover, why should we accept for our home-produce less than the foreign honey can be sold for on arriving here? The wholesale prices obtained for the latter being about 1*s.* per lb. for comb, and 6½*d.* for a good extracted article. The dirty wild honey coming from various parts is almost given away, but is useless until thoroughly cleaned and refined, and therefore should not be considered as having any bearing upon the matter. The above prices should guide the English bee-keeper, and in future let us insist upon obtaining a fairly remunerative price for our produce; say for 1-lb. combs, 1*s.*, and for extracted in bulk 7*d.* per lb.; if bottled, a little more, according to how it is put up.

Of course, circumstances will occur causing slight variations, such as a good or bad season, style of package, &c., but on the whole, I am convinced that the man who attempts to dispose of his produce at any considerable reduction from these prices, will expend his labour for nothing, and if a specialist, will soon give up in disgust.

Not very long since, a statement appeared by the Rev. V. H. Moyle to the effect that he could lay his hand on some 130 tons of English comb-honey at 8*d.* per lb. It has been reported that another gentleman, who could dispose of a few tons, forthwith wrote to him asking for quotations. After considerable delay, an answer was obtained giving the price required as *fourteen pence* per pound—a clear 5*d.* per lb. profit, after deducting expenses. It seems impossible, and I cannot believe that Mr. Moyle has so little commercial knowledge as first to offer a bee-keeper such a wretched price, and secondly, to expect such a profit on wholesale transactions. It seems much more likely that he meant to have said, or perhaps did say, that he could obtain that quantity of both extracted and comb honey at an average price of 8*d.* per lb. I see no other way to explain it, unless that gentleman will himself enlighten us.

Instead of assisting the cottager, or other bee-keeper, to dispose of his honey at a fairly paying sum, such a price for comb honey in sections will simply be assisting him to ruin, so far as his apicultural prospects go, unless, indeed, he can afford to give his *labour* for nothing.

With regard to labour, it should be understood that a man cannot work for himself without payment any more than he can for another. Labour, in whatever form it may be represented, is the heaviest, and therefore the most important, item of expense with all articles of produce, and honey forms no exception to the rule.

Then let us as producers carefully consider the whole matter, and decide upon the sum that shall be considered as giving a fairly remunerative profit for the average season.

As to those who find a difficulty in disposing of their honey, the trouble seems to happen mostly with those who have only one or two cwts., or less. Now, as a matter of fact, these are the bee-keepers honey companies and other large dealers are least able to assist, for the reason that it does not pay them to dabble in such odd lots.

Nevertheless, it appears to have been because of the cry from the multitude of small producers that steps were taken to establish the British Honey Company, but it remains to be seen to what extent that firm will be able to assist them, especially as we are now told that the said Company 'has reserved to itself the fullest liberty of action;' meaning thereby that foreign honey will be bought as well as British, and the home-producer will consequently have to compete against larger imports of foreign honey than ever before. I am sure there are many who will be disappointed to learn this, as the general impression was that the Company would deal in British honey only.—S. Simmins.

BEE FLOWERS.

At a time when the profitable management of bees is engaging the attention of so many people, I think it no more than right that the increase of honey-secreting trees and shrubs and plants should claim a fair share of our attention. Among the former the different kinds of fruit-trees, such as apricot, plum, peach, pear, and nectarine cherries, both wild and cultivated, blackthorn; and later on, apple, whitethorn, maple, poplar; and among shrubs the pretty flowering currant, or *Ribes sanguineum* should find a place in quantities in our shrubberies, not only on account of its valuable honey-yielding propensities, but also its excellent effect.

The present is a good time for increasing the stock of useful perennial honey plants, such as the herbaceous Veronicas, Sedum spectabilis, Michaelmas daisies, or perennial asters, of some varieties of which the bees are very fond; and the golden rod (Solidago) is also much appreciated by bees. All of the above are easily increased by simply cutting the old clumps into several pieces, and planting them again into fresh stations, either in beds or in the mixed herbaceous border.

Among annuals suitable for sowing during this and the following month, I would specially mention the value of the giant balsam or touch-me-not, as it is commonly called, I suppose owing to the peculiar way in which the seed-pods burst on being touched when they approach maturity, throwing the seeds about in all directions, if one is not careful in gathering them to enclose them in his hand. Mignonette is another plant that might well be more extensively cultivated; and both this and the foregoing plant in the south of England, if once sown and established, sufficient seed will generally survive through the winter in the ground to ensure a crop of plants each subsequent year.

In most kitchen gardens at this time of year there are quantities of stumps and roots of the following, which if left for a month or two in the ground will yield a valuable pasture for bees; and if the hives, those patterns of industry, are located near, will be enabled to visit them at times when longer flights would be hazardous:—Brussels sprouts, borecole or kale, cabbage, turnips; and if a neighbouring farmer allows a field of rape or mustard to seed so much the better for your bees. The first four named we have been in the habit of allowing to stand and bloom till the beginning of July, and with the very best results. Globe artichokes we have sometimes allowed to unfold their massive blue flowers, and it is surprising how the bees busy themselves in these flowers, and when they withdraw come out as dusty as millers.

Why should we not improve the pasture-lands in our neighbourhood by sowing over them both alsike and white clover? it would both improve as fodder for cattle and forage for bees. It is my intention to procure some seed of the two plants above mentioned and sow in the park here, which surrounds the apiary, but we do not anticipate any great yield for a season or two until the plants get thoroughly established. We feel certain that if bee-keepers go on increasing in the same rate as they have during a few past years, that it will become necessary to cultivate honey-secreting plants if success is to be achieved. In addition to the foregoing all the varieties of peas and beans are useful honey-plants.—C. Warden, *Clarendon Park, Salisbury.*

JUDGES.

There has been a great deal said of late in several bee publications respecting the judgment of honey and its various points. In my opinion we are wanting very much in this one point (namely, men capable to judge). I would suggest that each community pick out of its Association four members, men of experience, to be

judges for twelve months, and under no circumstances are they to go in that capacity with their own Association tent, but to interchange with other Associations; and in no case the same judges twice in the same season. I know of an association where the same judges accompanied the same tent four times at least in the same season, and all have been members from the same Association as the tent, also being self-elected; that is to say, not having been appointed by the Committee. I think this is a very loose way, and cannot be too strongly condemned by the parent Association.—W. P.

A SUGGESTION.

In your mid-February issue I read an account of the meeting of the Leicestershire Bee-keepers' Association, in which it appeared that the finances were low and that there was some question as to employing an expert. Now, with regard to both the above difficulties, may I make a suggestion? There are many persons, in the same position as myself, who have a few hives, who have read books about bees, and therefore know something of them; but their knowledge is so vague that they cannot carry it into practice, and they accordingly lose the profit on their bees or a large percentage of it. Nevertheless, many of them are anxious to learn if they only have the opportunity. Some of them are not even aware of the existence of the Leicestershire Bee-keepers' Association; many of them have seen, like myself, reports of the Society having met, but they have a very vague idea of the benefits they are to receive if they join the Society, or, in other words, what they are to receive in exchange for their subscription. I would therefore suggest that the Society should employ an expert who should go round to the several villages in the district and call on the different bee-keepers, give advice gratis as to the bees, or in exchange for a few pence, the amount of his demand being judiciously regulated according to the person for whom the service is performed, he should drive bees or take honey in the new methods, &c. He could then explain the benefits to be obtained from joining the L. B. K. A. and solicit subscriptions; I myself would willing pay a 'small' sum to see and have thoroughly explained to me the really practical methods employed in bee-keeping by a skilful man. It seems to me that by this method the L. B. K. A. would become widely known, and their subscriptions becoming more numerous, the expenses of the expert would be, to a considerable extent, met by this increase and the small commissions charged. This is only the suggestion of a non-practical (through ignorance) bee-keeper, but perhaps is worthy of consideration.—LEICESTERIAN.

MY FIRST YEAR'S EXPERIENCE IN BEE-KEEPING.

Having been a spectator of the processes of driving and transferring at Wisbech Show, I commenced keeping bees. My stock of bees in the middle of March 1884, were two lots in straw skeps and one in wood hive. I made five more hives during April, May, and June, one of which the rector bought. I transferred a stock for him and managed them during the summer.

I commenced manipulating about the middle of March, giving one bottle of syrup to each hive, that is all I did in the way of spring feeding: straw hive took their chance until they swarmed. Bees had plenty of sealed stores in wood hive. The first mistake I made was in being over anxious to spread brood, for when I found brood on two frames I inserted frames filled with foundation between them. I examined two or three times in April, doing no good to the bees: only with the help of Mr. Baldwin's advice, gaining a little information for future events.

In second week in May straw skep No. 1 swarmed, the first swarm I had ever seen. They settled nearly on the ground among gooseberry-trees, I could not get wood hive near enough, so with the help of an old-fashioned bee-keeper, we hived them in skep, and in evening I transferred them myself to wood hive with very little trouble. Queen proved very prolific, they did well, I think. I started them with six frames full of comb foundation and one bottle of syrup; they eventually filled seventeen frames, three frames of brood I took away to build up casts. I wanted to get all the bees I could. I extracted from that hive about 30lbs. of honey. I did not give room enough for bees in wood hive, so they swarmed two days after the first swarm came and were hived in straw skeps in which they are now: I took no honey from them. Everything being so new to me I could not think the swarm came from the wood hive, so I put on it a crate of sections, six of which had been partially filled in body of hive already. They never entered them, of course, and I could not see the reason why at the time.

On Sunday morning following I had two casts. One I hived in new wood hive I had got ready, the other in straw skep for permanency, a short time after another cast came, where from I don't know, but they settled under the alighting board of wood hive containing first cast. Business called me away for a time, when I returned they were fighting severely. I immediately smoked them and sprinkled them with scent, in the midst of which operation a thunderstorm burst, and I had to shut them up in haste and leave them to fight it out. Two days after, finding no brood, I took a frame of brood containing one queen-cell from old wood hive and inserted in this hive; they were started with five sheets foundation and one bottle syrup. I extracted a few pounds of honey from them. After twenty-one days I drove bees from straw skep No. 1, and united them to hive containing the casts which had fought, taking 18lbs. honey from this skep.

The second week in June, straw skep No. 2 gave out a splendid swarm which I hived in wood hive, giving eight frames full foundation; the day being very hot, I had a breakdown, but I got over it without any difficulty, I gave them one bottle of syrup, and the next day took crate sections from old wood hive and gave it to them. They soon filled twenty-one 1-lb. sections, and I extracted a little from them besides. After twenty-one days I drove bees from straw skep No. 2 one very hot day; quantity of bees very small, I was afraid a quantity of them had got crushed between the combs, but it was not so. I put them in new wood hive and built them up to a fair size stock, of course I got nothing from them, though I took about 20 lbs. honey from the old skep. I took about 14 lbs. from the old stock in wood hive.

I have now given you an account of my proceedings, muddles, &c. I must hasten to give results. I obtained 121 lbs. extracted and run honey, and twenty-one 1-lb. sections, and added four stocks to my apiary by swarming, making seven stocks, five in wood hives, and two in straw skeps. When I have sold remains of stock of honey, I shall have realised 7*l.* for honey and wax. I have not much left. Being fortunate in having two stocks in skeps given to me, I have only spent 5*s.* for bees. For hives, cylindrical extractor, feeder, &c., I have spent 9*l.* 10*s.* Thus my expenditure has exceeded my income to the amount of 2*l.* 15*s.* I value my stock of bees, hives, and appliances, thus:—

	£.	s.	d.
Five stocks including wood hives at 30*s.* each	7	10	0
Two stocks in straw skeps	2	0	0
Extractor and various other appliances	4	0	0
	13	10	0
Deduct excess expenditure	2	15	0
Balance	£10	15	0

By these figures I conclude I have already made 10*l.* 15*s.* by keeping bees.—A. H. FISH.

THE TRYPOGRAPH.

County secretaries will find this machine most valuable for sending out notices, circulars, &c. By its aid I have been enabled to send to our various local newspapers short notices of our aims and doings, in addition to being able to communicate with every one of our members upon the shortest notice. Unlike the gelatine process of reproducing letters, any number of perfect copies can be obtained in the shortest possible time, and a child can work it. We obtained ours of Messrs. Shoolbred & Co., Tottenham Court Road, W., with an extra supply of ink and paper, for 45*s*. The Army and Navy Stores also keep it. It may be worth adding that Messrs. Deacon, of Leadenhall Street, E.C., sell a little book for 1*s*. or 1*s*. 6*d*., giving the names of all the newspapers published in the various counties of England. Mr. Huckle, who uses the machine, first drew our attention to it.—E. H. B., *Hon. Sec. Hants B. K. A.*

DRY SUGAR FEEDING.

One often sees this recommended in the *B. B. J.*, and from its simplicity it is certainly a very taking idea. But how does it work? I mean that piece of American cloth over the bees. Practically, it may be the nicest thing in the world. Theoretically, one would suppose that the bees had to take a Turkish bath before they arrived at the requisite state of condensation. Now this may be very agreeable to their feelings; but is it necessary? Why not suspend on the other side of the bees a dummy feeder, filled with water?—J. O. Coussmaker, M.A., *Hamstall Rectory, Rugeley.*

Foreign.

AMERICA.

Another Pioneer gone.—William W. Cary was born Feb. 24, 1815, and died Dec. 9, 1884, at Colerain, Massachussetts. Mr. Cary from his early childhood had a great love for bees, and never lost an opportunity to study their habits when he chanced to be where they were kept. This impulse was so strong that it led him away from the ordinary amusements of boyhood. When thirteen years of age he met with an accident that deprived him of motion in one knee. The joint became anchylosed in a partially fixed position, causing him considerable inconvenience in moving about lumber piles and the ordinary work of his mill, which is only a few rods from the dwelling in the village of Colerain, Franklin Co. Mass. Being thus crippled did not affect his energy or enterprise. In the autumn of his eighteenth year, he obtained his first colony of bees, and from that time has never been without bees. His last illness was long and painful, nearly eighteen months. He grew rapidly worse, and died December 9, 1884, in his seventieth year. He had been a bee-keeper for fifty-two years. About the year 1850 he made the acquaintance of the Rev. L. L. Langstroth, who was then living in Greenfield, Mass., and they spent some time together in experimenting with bees and hives. At that time he commenced using the Langstroth moveable comb hive, determining to make all the experiments he could think of that promised to shed any light on the subject without regard to the season's surplus, that he might later work more safely, intelligently, and profitably. Early in March 1860, he learned that Mr. Samuel B. Parsons, of Flushing, N. Y., had succeeded in importing a few queens from Italy. He visited him and spent the entire season in Flushing propagating queens, having the whole charge of Mr. Parsons' apiary. Bees for several miles around were bought or Italianised, and every precaution was taken to prevent admixture. Since then he has uninterruptedly bred the Italian queens, and has used many imported mothers in his apiary. Mr. Cary took great interest in the importation of other races of bees, and made transportation boxes which he sent to foreign countries accompanied by full directions; but these attempts did not meet with any success. A few years ago, a missionary from Ceylon spent some time with him to learn practically the management of bees, and through him Mr. C. hoped to receive, some day, *Apis dorsata*, or at least some specimens of that bee and its combs; but nothing ever came of it. Since then the efforts of both Mr. Jones and Mr. Benton have thrown some light on the subject of the foreign races of bees.—*American Bee-Keeper's Magazine.*

CENTRAL AMERICA.

Bees in Yucatan.—Describing the ruins of the temple at Uxmal, Mrs. Alice D. LePlongeon says: 'The place swarms with life. During the months when no rain falls, every creature seems mad with thirst. There are millions of bees quite harmless, yet very troublesome, for they swarm about one's face and make themselves most annoying. They must be stingless, otherwise they would be more than simply annoying. Wherever water is to be found, they go throw themselves into it, and part with life for a drop. When they feel the dark waves closing over them, they doubtless repent of the rash deed, so having taken a drink and a bath, they are very grateful if any one will ladle them out. Then they crawl away like turtles, to repeat after awhile the suicidal attempt. The hives of these harmless bees are most ingeniously built of clay, held together and made extremely hard by a secretion proper to the insect. Speaking of the superstitions of the people, Mrs. Le Plongeon says that they suspend from the bee-hives *jicaras* filled with a drink called *zaca*, so that the bees may not abandon them, but may constantly bring honey, and their owners keep in good health.—*American Bee Journal.*

FRANCE.

The month of February has been rather colder than its predecessor, but, taken altogether, it has not been prejudicial to apiculture, and stocks have not suffered from its influences. Where cases of dysentery had been noticed, no serious consequences have followed, the weather having permitted of occasional cleansing flights, particularly during the first two weeks.

What, however, fills bee circles with apprehension, is the absence of demand on the market for apicultural produce. At this season, states the *Apiculteur* for this month, the consumption of honey should be very considerable. This year, however, the calm is of sufficient magnitude to alarm bee-keepers. Several holders came to Paris in the course of February in the expectation of meeting with remunerative prices for their honey, but had to return home disappointed, and their last hope is now their local consumption. Honey in pots, however, finds a ready sale at from 120 to 160 francs, but these figures are not remunerative. At the Palais de l'Industrie show, the same description of pots was finding ready buyers, but honeycombs were disregarded.

Some good sales are reported from Havre of Peru honey, but it is understood that they were made for account of Antwerp and Amsterdam merchants.

A GLANCE AT OUR WORK, AND OUR NECESSITIES.

A Paper read by Captain Heysham, R.N., *at the Annual Meeting of the Devon and Exeter B.K.A. February 6th*, 1885.

I can assure you that it is with the greatest diffidence and reluctance that I come before you to-day. In the first place, I say it in all sincerity, I have not the presumption to think that I can hope to say much that is new, or that will lead to new lines of effort, where the ground has already been so thoroughly beaten. At the same time I must ask you not to be frightened by the

title I have been obliged to adopt, for want of a more suitable one, I can only glance at a very small portion of our work. To even touch upon the numerous and ever-increasing calls on the energy, zeal, and ability of our respected President and Hon. Secretaries, would occupy far too much time, but some little idea of their widespread efforts may be gathered from the necessarily condensed statement of 'Work done' in our Annual Report.

Our great object, and the one that the Association has ever before it, is the spread of bee-culture on the modern and humane system, and that more especially amongst the Cottager Class.

I happen to be living in a part of Devon where bee-keeping on advanced principles is very little practised. 'Bar-frame hives' are few and far, far between, and the possessors of such hives amongst cottagers are scarcely to be found.

I will now, with your permission, and asking your indulgence, consider, first, the best way of extending the usefulness of our Association, and next, having converted our cottagers, how, as far as we can, to prevent disappointment, and the consequent backsliding which is by no means uncommon. I have had cases of failure referred to me quite lately; one did not approve of the bar-frame hive, because the bees built up in the roof, another had only one or two sections (out of a crate full) filled; in the first instance, no quilt or covering had been put over the frames; in the second, the section crate had been put on, *on* the quilt, and the bees had actually eaten through the obstruction, to accomplish what they had done. Another, a man of education and intelligence, has given up the bar-frame hive, simply because, on his first attempt (two or three years ago), a swarm, after being put in, deserted the hive, and he was unable to account for it. Unfortunately I did not hear of this till some days afterwards, when in vain I explained that various reasons might have caused the desertion; he adhered to his opinion, viz. that he did not hold with the bar-frame hive, and has since never tried anything beyond the old straw skep. I might multiply such instances, and every bee-master present could, I am sure, add to them from his own experiences.

We have lately resolved to appoint 'Local Representatives' of our Association, and for this purpose we want to find men in every part of the county who are themselves interested in bee-culture, and who are both able and willing to give advice and assistance when such is needed. In a paper written by me in 1883, which, owing to illness, was never printed, the above system was strongly advocated, and it was not till some months afterwards that I first saw the idea of 'District Advisers' started in the *British Bee Journal;* and the plan is, I believe, now in full work, in some of our County Associations. And here it will not be out of place to glance at the work that can be done by our 'Local Representatives.' I am sure that, the more you think of it, the more you will see how incalculable is the good they may do, and that their power for good is second to none.

Our respected President, Honorary Secretaries, and Council, may organize, consult, and initiate, but our 'Local Representatives' can stimulate, and increase the vitality of the cause, in every corner of the county, where it is impossible for the former to do more than a passing visit. The very fact of advice and assistance being given beyond all doubt free of charge, and, as will soon be well known, gladly given, will do much, because doubt on this point and the feeling that, although 'no charge is made,' a 'something' is expected, would deter many from seeking it. In saying this do not let me create the impression, that I do not think 'the labourer worthy of his hire,' on the contrary, if a bee-keeper seeks the aid of a man who makes bee-keeping his calling, and gives up all his time to it, and moreover, in most cases, calls him from a distance, he must, and ought to remunerate him for his skilled assistance; but to gain disciples, we must hold out a helping hand and endeavour to establish 'Representatives' in every corner of the county who will forward our views for the love of the cause, and faith in the benefits their teaching will confer.

Then see the multitude of useful work that could be done in the way of small shows, with practical teaching and lectures, in all parts. Shows that would cost but little, and probably do much, and the cost of which would be as nothing, compared to our hitherto expensive shows, that can only be held in some few great centres. These might be got up wherever 'Representatives' can be found. The appliances which most advanced bee-keepers possess would often suffice, but when this is not the case they could be supplemented by a few from the Association. The expenses when summed up would probably be, in some instances, the carriage by rail of a few supplementary articles, a spring cart, which in many instances the squire or landed proprietor on whose ground the show was held would supply, and a man's wages for the day. The 'Representatives' would keep touch of each other as far as possible, and confer when the opportunity offered, which would not only be of great service to the cause, but a pleasure to them as bee-keepers, and they could help each other in the getting up of these shows on a small scale, as suggested. Let this be tried, and compare the result in the way of disciples gained, and the spread of knowledge, with that which has hitherto been accomplished, by a few costly shows in populous centres.

Our County Show is a necessity, and without it we should not get together, and see tested in competition all the improved hives and appliances of our best makers, as well as all the newest inventions, and the finest samples of produce. Apiarians, and the cause they represent, could not afford to lose these advantages, but they do not reach the humbler cottage bee-keeper in distant and out-of-the-way parts of the county. I believe that our 'Local Rrepresentatives' can reach them in the way I have suggested and in various other ways that will suggest themselves to willing minds and ready hands. I have seen such shows and can answer for it, that they were perfect, in themselves, on a small scale, and cost the Association nothing; that they created some interest, was proved by an accession of members on each occasion; and it shall not be my fault if the experiment is not repeated, and if possible carried 'further a field.' Although those possessing the advantages of education, and some leisure, do not, and ought not to require the same attention, and instruction in detail, as their poorer neighbours, it will be admitted that they are much wanted, and indeed are essential, to the success of the cause. Hence it is a pleasurable experience to see people, whose interest has been awakened, dropping in from time to time, asking for information and help, to start bee-keeping on the modern system. I am sorry to say that these converts are by no means always ready to support the Association, but generally ask the question, 'What shall I gain by becoming a subscriber?' They do not realise that the very hives they buy and the instruction they are enabled to obtain, whether from books or word of mouth, are the outcome of our Bee-keepers' Associations, and that no intelligent bee-keeper can help being benefited by them; and further that the labour of love so willingly undertaken, by those in the same position as myself, is for the Association, nor do they realise the fact that while asking for and obtaining such help and instruction, they are culling to the full all the advantages, and are leaving the expenses of the movement to be met by the few for the advantage of the many. I believe it was agreed at the last meeting of our Council that a paragraph should be inserted in the next 'Annual Report' calling attention to these facts, so that the Local Representative will at least be enabled to lay it before those seeking his aid.

(*To be continued.*)

Echoes from the Hives.

Grantham, Lincolnshire.—The occasional bright warm sunny days of late afforded me the opportunity of making a thorough examination of my stocks after their shift to new quarters. It was satisfactory to find most of them strong and lively, though some with nearly a bare cupboard. We are not, as in the south, favoured with much out-door forage so early in the year, hence breeding is slow. I have commenced feeding with warm syrup at evening such stocks that are short of stores. I have removed old quilts and put on clean dry ones; but not the sweater quilts as advised in 'Useful Hints' of last issue. I must differ from the advice on that point; it cannot be good for bees or any other animals to imbibe their own sweat; and further, dry warm *porous* quilts are to my mind the most necessary for comfort of inmates of the hive; quite with you in your remarks further on where you say 'when hives are foul from dysentery, transfer to a clean *dry* hive,' since the dampness in a hive is we know injurious, and is doubtless often a cause of the dysentery we must try to prevent, but would not the sweating quilt conduce to the cause of the very evil bee-keepers so much dread, dysentery?—R. R. Godfrey.

North Leicestershire.—A long period of low temperature has kept the bees within their hives; on three days only have they been able to gather pollen during the fortnight ending 10th inst. Matters are getting critical; for if the weather continue cold so that the bees cannot visit the crocuses there will be great losses from 'spring dwindling' and starvation, through stores being too far from brood-nest.—E. B.

Devonshire, March 6th.—Stocks all seem strong and forward and have been out of late in large numbers, and gathering from crocuses, gorse, arabis, &c., on all fine days. Wednesday, 4th inst., was a lovely, bright, spring day, and bees were out in force, taking advantage of it. Since then it has turned cold, with biting north-east and east winds; I am, therefore, glad that I have not yet made the generally recommended 'first examination,' and cannot help thinking that well-provided stocks are much better left undisturbed till after such a cold spell as we are now experiencing, and which is to be expected about this time, and that they will, in the end, come out better than those that have been interfered with and their brood-nests disturbed. Below I send you the rainfall for January and February of this year, as well as that for the corresponding months of last year. In January, 1885, the total rainfall was 3·11 inches, while the number of days on which ·01 inches, or more, fell, was 17. In the corresponding month of last year the total fall was 4·49 inches, and the number of days on which rain fell 19. In February, 1885, the total rainfall was 3·97 inches, and the number of wet days 20, against a total of 4·05 inches, in corresponding month of last year, and 21 wet days.—W. N. G., *Hon. Sec., D. & E. B. K. A.*

Oxford, March 9th.—The order of the day during the last fortnight has been continual change: one day a bright sunshine, very inviting, but most dangerous, and another a sharp frost, with a slight fall of snow, which proved a better friend than the former as it did not invite the bees out. The only thing of importance just now, and that which occupies a great deal of attention, is the discussion on the advisability of a local committee to work in Oxford amongst the labouring classes. It promises well that some action will be taken by the Oxfordshire Association to see it safely on foot, as the Rev. F. Dillon has promised to do his utmost. But there is one idea prevalent, which I must say is ridiculous and absurd, and which cannot result in any practicable ends, viz., to start an association apart from the County Association. Have the proposers of this scheme thought of the difficulty of getting experts, bee-tents, &c.? Any one must see, if they will only take the trouble to weigh the matter, that such a thing would be impracticable, without it is to be in conjunction with the Oxfordshire Association; and it is to show the foolishness of the idea that I have dragged the subject into this note. To leave this subject, and to return to our little friends, I may say that to-day the bees are working hard, and carrying in pollen in great quantities. The sun is shining beautifully, but rain threatens to descend shortly.—E. F. H.

NOTICES TO CORRESPONDENTS & INQUIRERS.

J. W. A.—*Doubling.*—We cannot do better than refer you to Cowan's book, fourth edition, pp. 54 and 55, where you will find 'Doubling' fully described.

E. L. H.—*Quilting.*—The layer next the frames should be ticking, then a piece of carpet, and, in spring, a board on the top of it. You may substitute a piece of American cloth for the ticking when breeding has well commenced, but not too early or you may cause dampness and dysentery. 2. *Propolis.*—Propolis can be scraped off the frames, and it is not necessary to scald them, but if dysentery has existed leaving stains, you would do well to wash with phenolated soap.

E. Owen.—*Bees in Super Cover.*—You had better let them swarm as you suggest, and hive the swarm in a bar-frame hive, and, about twenty-one days afterwards, transfer the combs and bees remaining to another bar-frame hive. 2. *Hives.*—We must refer you to our advertising columns for your selection of a hive, merely suggesting that you should get a long one known as a 'Combination Hive.' 3. We shall be glad to hear that you and as many of your friends as you can enrol, have joined the B. B. K. A., and become subscribers to the *Journal.*

D. Wallace, *Parsonstown.*—1. *Removing Bees.*—Please refer to p. 53, where full instructions are given in answer to other inquirers. 2. *Examination.*—Do it now. But, instead of giving more room, remove all frames not covered with bees, giving them back as they increase in strength. 3. *Feeding.*—Now, if they require it, or uncap the honey in the frames which you remove, and place behind the divider giving access to them. 4. *Bees in Skep.*—You must transfer. Unless you have had experience, you had better let them swarm, and transfer twenty-one days after. 5. *Sectional Hive for Queen Raising.*—Make a long hive, *i.e.*, a trough 14½ inches wide, 8½ deep, and 24 or 30 inches long. You can then divide it off by moveable dividers into as many nucleus chambers as you please, making entrances on alternate sides and at each end. When you have raised your queens give them to your condemned bees when you hive them, of course removing their own queens.

A. B.—1. *Close Examination of Skep.*—This is not possible. You can only drive the bees from one part to another by smoke and look down between the combs when, if there is sealed brood, you will see it. You may catch sight of the queen. Or you may choose a warm fine day, and drive all the bees out and return them. 2. The space between the side bars of the frames and the hive sides should be ¼ inch, neither more nor less. 3. *Metal Ends.*—If you refer to the illustration in the advertisement you will see that the top bar of the frame is slid into the opening in the end, the perpendicular part of the small triangle rests against the frame-end. The length of the metal end, 1⅜, preserves the lateral space, and the triangle the ¼ inch space between frame and hive side. The ends rest on the edges of the hive sides.

F. Girdlestone.—1. The honey impregnated with saltpetre should not be used for bee-feeding, its chemical constituents would be injurious to the bees. 2. If you have a supply of honey, it may be utilised for

stimulating food. It would save you the trouble of syrup-making. See 'Useful Hints.'

T. C.—*Bees sucking Sand.*—We should presume that the bees, if hive-bees, sought the newly dug sand for the purpose of obtaining moisture; if mason bees, or burrowing bees, for agglutinating the particles for their cells.

Leicesterian.—It would be desirable to let the bees swarm; and twenty-one days after, transfer to the bar-frame. See 'Transferring,' in *Modern Bee-keeping.*

Amateur.—1. *Old Comb.*—Melt down the old and mouldy combs containing dead larvæ. Foundation is far preferable. 2. *Adulterated Foundation.*—You would be doing good service to the cause of bee-keeping by making an exposure. Whether you will undergo the annoyance, responsibility, and trouble, almost certainly resulting therefrom, it must rest with yourself to decide. Before you enter on such a course be careful to ascertain that your analysis is quite correct. We, of course, cannot guarantee the truth of all statements made in our advertising columns. If the foundation was warranted, or even stated to be made of pure bees' wax, you have a good case. We fear that adulteration of foundation with paraffin is carried on to a considerable extent.

E. K. Elliott.—*Broken Combs.*—There are two courses which may be pursued in the case you describe: (1) Invert the hive on a floor-board. On a fine warm day separate all the attachments of comb from the sides of the hive, and remove the hive from the frames, combs, and bees, leaving them in a mass on the floor-board. Scrape and clean the hive. Cut away each comb separately, one by one, and brush off the bees with a feather, or light brush, into the hive. Tie the straight worker comb into the frames, placing all brood in the centre, and return each frame to the hive as you operate, being careful to place the brood-frames in the centre of the hive, and those containing honey on the outsides. Beware of injuring the queen. (2.) *Transferring.*—Leave the hive in its present state until it swarms naturally, and three weeks afterwards transfer as recommended above. We prefer the latter plan.

W. H. J.—*Dwindling.*—From your description, the hives were clogged with honey, and too little breeding space left for the queens; hence the population has dwindled and the stores are left. You will do well to remove one or two combs of sealed honey from each hive, and to give in lieu empty combs, or to extract the honey from the combs removed, and to return them.

E. B.—*Honey not Setting.*—It is very unusual for honey to remain liquid so long. If this is a peculiarity of your district, it indicates sections as better to work for than extracted honey.

Inquirer.—1. *Weak Stocks in Skeps.*—Weak stocks will do no good, and the sooner you unite the better. The first warm fine day, turn up the skeps, sprinkle with a little warm thin syrup and drive out both lots. Mix them together and return to the skep which contains most brood, which you can ascertain when the bees are out by drawing the centre combs apart. You will not, of course, be able to see any except sealed or ready to seal. 2. *Size of Skeps.*—Large ones are the best, say 15 or 16 inches wide by 10 inches deep, flat tops with large holes for feeding and supering. The sides should be upright.

East Limerick.—Pollen-gathering, though not always to be considered a sign that the hive has a queen, may generally be supposed to be so. Why not satisfy yourself by 'oecular demonstration?'

M. G. Kirk.—1. *Refuse on Floor-Board.*—The refuse from the floor-board is normal, and consists almost entirely of dropped cappings from cells which have been opened for the purpose of feeding on the contained honey. Take a little of this refuse and make it hot on a piece of paper, when you will find the wax, of which it principally consists, melting and spreading, and so declaring, its character. Treating it with benzol is the better plan, if you would wish to isolate the pollen-grains and thin coats mixed with the wax. 2. *Alvine Discharges.*—The alvine discharges are full of pollen *débris*, and simply indicate that the bees have been exposed to a very low temperature. The hive walls being thin, the wintering space within the hive too large, the covering thin or ill-fitting, or the bees few in number, would fully account for all that is observed. I have lately established that dysentery is a distinct disease, from which your bees are certainly not suffering. They have, however, from some cause been unduly taxed, and the remedy lies in removing the reason of their unsatisfactory condition.—F. C.

R. P.—*Diseased Queen.*—The case of your queen is of extreme interest. She was suffering very badly from disease, her body being nearly full of the now well-known bacillus alvei. The fact of bees (workers) leaving the stock when stricken, so that they may die outside, I drew attention to months since, and here the same instinct is found to possess even the queen. Her recovery from chill more than once is just what all observers have known to be the rule. Some queens sent to me from Ireland, and which were supposed to be dead before their departure, I found to be still living upon their arrival, and to be capable, in a damp, warm air, of being sufficiently revived to actually feed. It will be most interesting to watch your stock, in order to discover whether the disease has established itself amongst the bees.—F. C.

J. A. T.—1. *Feeding.*—We hardly understand what you mean by saying that 'many bees have gone away, and have not returned.' From your description we imagine the colony is strong and healthy. As regards stores you do not inform us. The safe plan, therefore, is to feed from a bottle-feeder, with warm syrup, given towards evening. See *Modern Bee-keeping*, pp. 64-5, and *Cowan*, p. 151. 2. *Bee Flowers.*—You cannot grow flowers to be of much service to your bees. The best garden flowers are Limnanthes Douglasii, wall-flowers, borage, mignonette, &c. 3. *Transferring.*—We advise you not to transfer at present. Allow your skep to swarm; place the swarm in a modern frame-hive; three weeks after the issue of the swarm, transfer bees and comb from the skep to a frame-hive.

Herbert Worth.—*Ivy Honey.*—1. There is no doubt that in case No. 1 the bees had not stored any large quantity of honey gathered from the ivy. In case No. 2 the bees had collected large stores from ivy, the honey from which is disliked by many as having a peculiar flavour and being dark in colour. Our own bees collected largely from ivy as late as the 5th November last year, and have wintered well upon it. We are inclined to think that the honey described as 'very disagreeable in flavour' was collected from aphides, which often infest the ivy. 2. *Feeding.*—Feed copiously the colonies in skeps, from a graduated bottle feeder. (See answer to J. A. T.) As the skeps are only partly filled with comb you cannot expect early swarms, unless the season prove very favourable. The only plan is to give as much syrup as the bees will take to encourage comb-building as the weather becomes warmer. The fact of the bees carrying in pollen largely proves that building is going on, and that the colonies are healthy. You have only, therefore to guard against starvation.

Rev. F. Coussmaker.—*Mounting for the Microscope.*—Full instructions will be given in our next number.

Received:—North East of Ireland Annual Report and several Queries, which will be attended to in our next.

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FOR SALE.—Five Stocks of Bees in Straw Skeps, 12*s.* each. Address JACKSON MAPLETHORPE, Billinghay, Lincoln. c 29

FOR SALE.—Swarms and Stocks of English Bees in Straw and Frame Hives. Price according to size and time. All Bee-keeping Appliances supplied. Address C. H. CRISFORD, Ninfield, Battle, Sussex.

FOR SALE.—Together or separate, Hives stocked with Bees.—Two Abbott's Copyable, 22*s.* each. Two Cottage, 19*s.* each. All Association Frames. Extra Stock put in Copyables for 12*s.* each. Skeps for transferring, 16*s.*, 14*s.* Box, 15*s.* The lot, £7. Address CHARLES GREAVES, Littleport, Ely. c 34

FOR SALE.—A number of Stewarton Octagon Boxes, all in first-class condition, some of them unused. Half price. Address HENRY BLACKWOOD, Gillsburn, Kilmarnock. c 35

FOR SALE.—Four very strong lots of Bees in Straw Hives, each Hive with one of last year's Queens, 15*s.* each. Address R. ATKIN, The Hill, Welwyn, Herts. c 36

SEVERAL Straw Skeps of Bees, 12*s.* each. Apply, by letter only, T. R. SMITH, Woking Village, Surrey. c 37

FOR SALE.—Ten Twin, or Stock and Nucleus Combination Hives; also a few Section Racks, and Simmins' Dry Sugar Feeders. Cheap. Address HEAD MASTER, St. James's, Northampton. c 38

ST. JAMES'S, NORTHAMPTON.—J. E. L. GILBERT, Hon. Sec. Northants B. K. A., offers his Services as Expert during the Easter Vacation. Expenses only required. c 39

BEES FOR SALE.—Stocks, any time, £1 each. Swarms, May or June, 12*s.* 6*d.* Address ARTHUR FELSTEAD, Rempstone, Notts. c 40

HONEY, Pure Extracted, for Sale, 40 lbs. in 1-lb. Bottles. Apply F. AYLING, Lodsworth, Petworth, Sussex. c 41

FOR SALE.—Strong Stocks of Bees in Skeps, 15*s.* each. Address A. SHARP, Mill Apiary, Huntingdon. c 42

FOR SALE.—Forty Sections, about 1 lb. each. What offers? Address J. HOLLEY, Hail Weston, near St. Neots, Hunts. c 43

DON'T forget to read this Important Notice—**JOY'S** NEW ILLUSTRATED CATALOGUE of HIVES and BEE FURNITURE is now ready.

Sent post free per Penny Stamp. Address—

ALFRED JOY, The Apiary, Aylesford, Kent. 3304

Imported CYPRIANS & SYRIANS.

See December *Journal*. Remittances and Letters posted up to March 4th to LARNACA; March 4th to 19th, BEYROUT; after that, MUNICH, Germany. (94)

FRANK BENTON.

WANTED, a Single Man, with a good knowledge of Modern Bee-keeping, as GROOM, and to be generally useful. Or, a Man with a knowledge of Bee-keeping, to take some duties of a Game-keeper, and other work. Apply BEE-KEEPER, Post Office, Market Rasen, Lincolnshire. 3682

LIMNANTHES PLANTS, 6*d.* per hundred; 4*s.* per thousand. Three Hundred post free. Address JOSEPH COOK, Fairford. 3506

LIMNANTHES PLANTS, 9*d.* per 100, free; 5*s.* per 1000, packed. Seed, 3*d.* Canada Balsam, 3*d.* Address, RECTOR, Buttermere, Hungerford. 3637

SUPERIOR VEILS, with Wire Gauze Fronts, 1*s.* 2*d.* post free; two for 2*s.* 2*d.* Candy, 5½*d.* per lb. Address, W. CRISP, Halstead, Essex. 3661

FOR SALE.

A FOUNDATION MACHINE, by Neighbour and Sons, quite new, with accessories; also a four-frame Observatory Hive, in mahogany, only used twice. Particulars on application to C. C. CUST, Bank, Wareham. 3657

IMPORTANT TO BEE-KEEPERS.

SEND stamped addressed envelope for Printed List (price) of the best Bee Plant Seeds for your pets. Good Seed a boon to Bee-keepers. Address W. HOLLINS, Tillington Avenue, Stafford. 3674

Important Notice to Amateur Hive-makers.

Standard Frames in the Flat,

Tenoned and Morticed, requiring no block to make, with 17 in. solid Top-bars, per gross 10*s.*; with split Top-bars, per gross 12*s.* 6*d.* Can be used with Metal Ends.

SECTION CRATES,

Dovetailed, in the Flat, for 4¼ by 4¼ Sections.

To hold 7lb. per doz. ...	7/6	Sections & Dividers ...	3/9
,, 14lb. ,, ...	9/0	,, ,, ...	7/6
,, 21lb. ,, ...	12/0	,, ,, ...	11/0

No less quantities supplied, and we do not undertake to fill orders at above prices after March. *Terms Cash.*

E. M. HART & Co., The Longstock Hive Manufactory,
STOCKBRIDGE, HANTS. (90)

Will be sent post free on receipt of Two Stamps,

THE AMATEUR'S GUIDE IN BEE-KEEPING.

A. G. DAWSON,
ALMA BUILDINGS, MACCLESFIELD. (3210)

BRITISH BEE-KEEPERS' PRACTICAL NOTE BOOK. By THOMAS W. COWAN, F.G.S., F.R.M.S., &c. Crown 8vo, boards, 1*s.*; postage 1*d.* Indispensable for every Bee-keeper. Published by J. HUCKLE, Kings Langley; may also be obtained of all Hive-dealers.

THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

[No. 167. VOL. XIII.] APRIL 1, 1885. [PUBLISHED FORTNIGHTLY.]

Editorial, Notices, &c.

THE HONEY COMPANY.

As several letters have appeared in the *Journal* from Mr. S. Simmins, 'W. D.,' and others, with regard to the working of the above Company, we are authorised by the Board of Directors to make the following statement of their intentions.

The primary object of the Company is to promote the ready sale of British honey, but they have taken full powers to sell foreign honey as well; so that if the demand for honey by the public is greater than the supply of British honey, they might be enabled to supply foreign honey instead of none at all. The Directors have no intention at present of dealing in any honey except that produced in the United Kingdom, and will buy honey from their shareholders first, other things being equal—price, quality, &c. Supposing a shareholder holding, let us say for sake of argument, one share, offers the Directors honey inferior in quality and more in price to that offered by a non-shareholder, it would be extremely unbusinesslike in them to buy the dearer honey, and advantage the one shareholder at the expense of the many. In order to make it easier for bee-keepers in a small way, the Directors will receive honey in payment of shares, which may be paid up in part or in full at the option of the shareholders.

The Company will also provide tins for sending the honey, and, being able to make special rates with the railway companies and others, will pay carriage on honey, which will be recharged to the seller, if not allowed for in the price at which the honey is offered. This price will, of course, vary according as the honey harvest in Great Britain is good or bad.

Over 5000 shares have already been applied for; and the Directors are now prepared to receive offers of honey, and samples will be received at the offices of the Company, addressed to Mr. Hackle, 17 King William Street, Strand.

It will be advisable for small producers of honey to act together, so as to save expense in carriage; and as the Company will guarantee the purity of all the honey they sell, and will from time to time submit samples to their analyst, all persons unknown to the Directors must send a reference as a guarantee that the samples are genuine; and in all cases the sellers of honey to the Company will have to guarantee that the honey they send has been produced in Great Britain, and that it is genuine.

Through the great kindness of Mr. Burdett-Coutts and the President of the B. B. K. A., most suitable premises, with ample cellarage for storing honey, have been secured on very favourable terms to the Company at Columbia Market, and the Directors propose commencing business in the course of the next few days.

The General Meeting of all the shareholders will take place on 16th April, and a statement of the affairs of the Company, their plans, &c., will then be clearly put before them, and discussion invited on any suggestions that may be made.

We understand also that a well-wisher to the Company has offered to transfer to the Directors a very valuable contract for the sale of honey without any compensation to himself.

The fact that there are 200 shareholders, with shares from one and upwards, shows conclusively that the British bee-keepers are convinced of the usefulness of such a Company, and so have taken up already over a fourth of the nominal capital, thus ensuring its commercial success; and it only remains for those who have not taken shares to send in their applications as soon as possible before the General Meeting, as the Directors reserve to themselves the right to close the list when they think fit, and afterwards issue the shares only at a premium, or offer them, in the first instance, at par to their original shareholders.

THE FUTURE OF BEE-KEEPING.

It is not too much to say that the production of honey is now being gradually recognised as an agricultural industry, and we are glad to note that more than one Agricultural Association is offering honey prizes this year. Whether bee-keeping will continue to maintain the position into which it has so suddenly sprung remains to be seen. One thing is certain, that, if it is to do so, it must be regarded as a profitable industry, and not merely as a pleasant pastime for leisure hours. It is all very well for country clergymen and others who have little else to do, to take it up as a hobby, or as a means of civilising their neighbours, for ladies and gentlemen to keep a few hives to supply themselves and their friends with honey; but this will not

constitute it an industry, or do any permanent good to the country.

Bee-farms have been started in England, and we hear a good deal about 'artizans and labourers paying their rent with their bees;' but there are two considerations which constantly force themselves upon our notice, first, the yearly increasing difficulty that many bee-keepers find in selling their honey; and secondly, the fact that the high price which honey has fetched in past years cannot be expected to be maintained. These two points resolve themselves into the practical question, 'Will bee-keepers in the future find a market for their produce at a remunerative price?' And we believe that the answer is certainly, YES.

The price of honey has lately been dealt with at length by a well-known writer in our columns. But, after all, the price of anything is what it will fetch in the market. Honey, to find a ready sale, must be put forward as an article of food, or for manufacturing purposes. It is largely imported into this country, and the home production must be able to compete with the foreign in the open market. The fact is, we are passing through a transition state: the home supply has improved somewhat rapidly both in quantity and quality, and so far the demand has kept something like pace with it, but time is necessary to bring the producer and consumer together. This, we believe, will to a great extent be shortly brought about by the Honey Companies; and the price will then settle itself, and it will be seen whether it will really 'pay to keep bees.'

As regards comb honey in sections, the 'home-grown' has a certain advantage over the foreign on account of the difficulty of carriage, and it will always command a more or less fancy price as a luxury; and those, who can offer it in fine condition, will be able to sell it at something more than a merely remunerative price. At present something like the same price is asked and expected for all honey in sections, whatever its condition may be; and a very large proportion of that which finds its way into the market is very inferior, and many exhibits to which prizes are given at the various shows are scarcely worth commendation. However, time and experience will show a considerable improvement in this direction.

No doubt there are a good many bee-keepers on modern principles too, to whom the craft will never bring any profit; but this is equally true in all trades. Careless and neglectful bee-keepers must 'go to the wall' like other folk if they will not mend their ways, and leave the profits to the skilful and diligent.

In the case of extracted honey 'the race will be to the swift,' and only those whose hives, whether few or many, can be made to yield largely will find it pay. As an article of food honey is very valuable, but it is scarcely a necessity, and the price at which it will find a ready sale must absolutely be regulated by the demand; and that price must shortly be what is now called a very low one. Mr. Simmins puts it at 7*d*. That price may do for a year or two, or a limited quantity in ornamental bottles, and perfect in colour and transparency, will probably continue to fetch even a higher price; but the *bulk* will have before many years are past to be sold at even a lower price—a price which will make it accessible to the middle and lower classes as an article of food; and that as such it will before long be bought in Columbia Market we have no doubt.

Of course, many bee-keepers will exclaim indignantly at the bare suggestion of this. But we are not prescribing what the price of honey shall be; we are only prophesying what it will be, and we further prophesy that there will be plenty of persons found to produce it at that price, and that, too, with a 'living' profit.

There are not wanting persons who would advocate something like a honey ring or a trades union system, by which they would fix the price; but their policy is a short-sighted and selfish one. Those, on the other hand, who desire to see the pursuit established as an *industry for the many*, and especially for the *agricultural poor*, will no doubt be anxious to maintain for their clients as high a price as is consistent with a free and ready sale. The task of finding a constant market is, no doubt, a difficult one, but not an impossible; with proper organization, and the co-operation of County Associations with the Honey Companies the difficulty may be overcome.

Thus the future of bee-keeping as a general industry would seem, to a great extent, to depend upon the working of the Honey Companies and the efforts of the various Associations. If the Associations will do their part in teaching their members how to secure large harvests, and to present their produce in a marketable form, there is little reason to doubt that the Companies will find the means to pass it on to the consumers at a fairly remunerative price.

THE DISSECTION AND MOUNTING OF MICROSCOPIC OBJECTS.*

Many objects cannot be examined under the microscope without subdivision or previous preparation, either on account of their size, or because some parts are hidden from view by others of an opaque character.

This is so with most insects, especially the larger species, though, on the other hand, some of the more minute kinds are generally sufficiently transparent as to require no special treatment. The student will find it necessary to acquire a slight knowledge of dissection in order to gain a correct insight into the relative structure of their specimens. We can hardly describe in a few words how to proceed in each individual case. Experience will be gained by practice, and the student will find that his dissections will be more easily made if he carefully study the general arrangement of the organs of his specimens. Bees and other insects intended for dissection should never be allowed to become dry; and if they cannot be

* In reply to request of Rev. J. O. Coussmaker, and others, for instructions on above subject.

treated at once they should be preserved in dilute glycerine or weak spirit.

Dissections may be carried on with but few instruments. Small-sized saucers or watch-glasses will be found to serve as the most convenient kind of trough. The specimen will be more easily dissected if fastened into the bottom of one of these by a little paraffin wax or other adhesive substance to prevent it from moving about. The specimen should then be covered with a small quantity of dilute glycerine or water, so as to enable the waste tissues to be easily carried away. A watch-maker's eye-glass will be found a very useful help to magnify the minute organs. A few ordinary sewing-needles with the eye ends inserted into penholders or other handles are very necessary. Camel-hair pencils, one or two pairs of delicate forceps, a few dissecting-knives of various shapes, and two pairs of finely-pointed scissors (one pair with straight blades, the other with curved blades), are nearly all the requisites that will be required.

The student will do well to practise his dissections on the larger species of insects, such as beetles, wasps, &c. The queen and drone-bees will be found admirable and interesting subjects. Do not hurry on with imperfect dissections of a number of subjects, but keep to one species, such as the honey-bee, until a good knowledge of its anatomy has been attained. Do not take the trouble to mount any imperfect specimens.

The student having fairly well mastered the art of dissecting, should procure from one of the numerous dealers in microscope apparatus a few glass slides. These are usually made with ground polished edges, and generally of one universal size —viz., 3 × 1 inches; some thin glass covers, and a few cells of various sizes and thicknesses made of glass, tin, or vulcanite. These latter must be fastened to the slides in the centre when the object that is to be mounted is of considerable thickness, or will not bear pressure. It is evident that a wall must be formed round it to support the thin glass cover. Care should be taken that the glass slides and covers are perfectly clean and dry before the object is mounted thereon. Marine glue, gold size, and diamond cement, are the most convenient adhesive substances for fastening on the cells or the cover glasses.

The next articles to be considered are what may be termed 'Mounting Mediums.' There are a very large variety of these, and it is impossible to give all the various recipes for the making of such in our very limited space. We will proceed with two of the mediums most generally used for the mounting of insects.

Canada Balsam.—If the specimens are large they should be put into liquid potash, and let them remain a longer or shorter time according to their texture. When ready to remove they should be well washed in water, and carefully cleaned with a camel-hair pencil, then immersed for a few minutes into alcohol, so as to remove all trace of water, or the object will become cloudy. Afterwards the specimens should be put into a bottle of spirits of turpentine, where they may remain until required for mounting. Small insects, parts of bees, &c., may be made transparent by a continual soaking in turpentine or oil of cloves. In mounting an ordinary object the superfluous spirit should be drained off, and a sufficient quantity of balsam should be laid in the centre of the slide. This should be warmed, as it becomes much thinner, and is more easily manipulated. The object is then carefully placed into the balsam, and the thin cover glass laid on with a pair of forceps, gently pressing it down to the level of the specimen. The mounted slides should be allowed to remain for a day or two, so that any air-bubbles may escape; then very gently dried for a few hours in a slow oven; after which the superfluous balsam round the cover glass may be carefully scraped away with a small knife. Canada balsam may be purchased from dealers and chemists. It is a thick, transparent, resinous substance, similar in appearance to good honey.

Glycerine.—This is another medium which is most commonly used for the preservation of parts of insects, more especially the internal organs. The dissections having been done may be well washed in water or alcohol, so as to remove all extraneous matter; then put into a small bottle of pure glycerine until ready for mounting. A cell of glass, tin, or other substance, according to the thickness of the object, should be firmly fixed with marine glue or other good cement to the centre of the glass slide. The object laid into the cell, and filled up with glycerine. The top of the cell to be coated with marine glue, liquid glue, or gum dammar, which is used as a cement for fastening the thin cover glass. Care should be taken to avoid air-bubbles, as if these occur it is often necessary to use an air-pump for their extraction. We may here state that all slides of this kind should be examined at short intervals, as they may be found to require another coating of varnish round the edge of the thin glass cover, so as to prevent all danger of leakage.

EXAMINATIONS.

It will be observed from the report of the proceedings of last Committee Meeting of the B.B.K.A., p. 113, that it is proposed to hold in London, on May 16, an Examination of Candidates who may be desirous of gaining either First or Second Class Certificates. The scheme, as adopted last year, will in the main be adhered to for the coming year. Third Class Examinations will be held on any date from May 1st to September 30th at any place by request of the Secretary of any Affiliated Association which has fulfilled the conditions of affiliation.

An Examination for Second Class Certificates will be held on a date (after September 30) to be fixed by the Board of Examiners at various centres throughout the country. This examination will be open to those who have already gained Third Class Certificates.

For First and Second Class Certificates an examination will be held in London during the spring of

1886. This arrangement will give those candidates who may have failed or who had not been able to compete at the Second Class Examination, held in the previous autumn, an opportunity for further study, which may enable them to be successful and to gain their certificate previous to the opening of the next season's work.

Candidates intending to compete at the forthcoming Examinations must give notice to the Secretary, Mr. J. Huckle, King's Langley, not later than Saturday, May 2nd; such notice must be accompanied by an entrance fee of five shillings.

QUARTERLY MEETING AND CONVERSAZIONE.

The Quarterly Meeting of County Representatives will be held at 105 Jermyn Street on Wednesday, April 22, commencing at four o'clock. The following subjects will be discussed :—

(1.) The desirability of securing more satisfactory and uniform rules in Schedules at local and county Shows.
(2.) To discuss the advisability of County Associations holding their Annual Meetings during the month of January being entered in the conditions of affiliation.
(3.) Consideration of leaflet containing hints to beginners in bee-keeping.
(4.) Tabulated returns of the work of County Associations during 1884 to be submitted.

The Conversazione will commence at six o'clock, when a paper will be read by W. N. Griffin, Esq., Hon. Secretary of the Devonshire Association. Subject: 'Honey and Wax, their Varieties and Qualities.'

USEFUL HINTS.

Upward Ventilation. — Weather permitting, quilts of porous material should now be removed, and their place supplied by enamel sheets over all strong colonies. Sheets of calico steeped in, or brushed over with, melted wax, are as good as enamel. The *bees* will prevent too great an amount of moisture accumulating in the hive, —witness the little ventilators merrily fanning at the entrances. The conditions now are widely different from those of the winter months when the bees were closely packed in central cluster, and had no power of ventilation,—when days were short and nights long, and the atmosphere cold, or teeming with moisture. *Then* flannel quilts, as absorbents, *might* be useful. We say *might* advisedly, for we are not *quite sure* of the fact. In medium-sized skeps, well stored with sealed food, and inhabited by populous colonies, under the old system, we never knew a case of dysentery, and very rarely of disease of any kind. And yet the interiors of these skeps were so thoroughly propolised that escape of moisture was an impossibility. This we do know, that if enamel sheets are not supplied the bees will soon *enamel* for themselves. No sooner do the opening buds of chestnuts, poplars, and other trees, afford a supply of propolis, than the natural instinct of the bees leads them to apply this—nature's enamel—to ceiling, walls, and floor, rendering the whole interior of the hive impervious to moisture.

There need be no fear of dysentery or dampness at this advanced period of the year. 'Assist Nature, but do not attempt to teach her,' should ever be our motto.

Stores in strong, healthy colonies will now disappear rapidly. It behoves us, therefore, to beware of starvation, and to have the feeding-bottle ready for all hives. The bees will not take down the food except when required. If larvæ—white grubs—be cast out of any hive, starvation is imminent. With the best feeding sugar at 2*d.* per lb. there is no excuse for allowing bees to starve.

Examination.—In mild, warm days hives may now be thoroughly examined, and the presence or absence of queens ascertained. Let it be done quietly, but speedily, and by an expert, if possible. Never lay bare the whole of the frames at once—about half is sufficient. Use no smoke at the entrance. An assistant, smoker in hand, to drive down the bees by jets of smoke over the frames, while the operator manipulates, helps materially. Robbing is the chief danger, in large apiaries especially. Only last week, while examining quickly six hives, two of the queens were encased—before we could close the hives—caused, no doubt, by the entry of robbers, or strange bees. So great was the commotion that, after rescuing, we were obliged to cage the queens, releasing them after twelve or fourteen hours' confinement. Obtain a sight of the queen, if possible, but do not dally for this purpose. Evenly deposited brood, in various stages, is sufficient evidence of her presence. Still keep the bees confined to the combs they can fairly cover, adding others outside, as required. To any populous colony, found queenless, add a weak colony with its queen—caging the latter for twenty-four hours—by placing the weak one in the centre of the strong one. This operation we have thrice performed within the last ten days, and it is a pleasant sight to behold the increased energy of the bees—the loads of pollen carried in, with haste so eager, that one might suppose life or death to depend on the issue,—and this where a few hours before all was despair, loitering about the entrance, and not the slightest energy displayed. In a well-managed apiary the ages of all queens are known, but where this is not the case an old queen may be known by the listless manner in which she walks over the comb, the lack of attention paid to her by the bees, the small amount of brood in the hive, and the dwindling population. Sluggishness, and oftentimes largely developed size, with unwieldy abdomen, are certain marks of age. Depose at once such queens, and unite the bees to another colony.

Note, for future guidance, the conditions of every colony.

From the middle of this month syrup of thin consistency—10 lbs. of sugar to seven pints of water—may be advantageously given to strong colonies.

The condition of skeps can only be ascertained by turning them up and examination. If full of

bees, but light, the colonies are prosperous, and must be freely fed, in anticipation of early swarms, or supering.

General Remarks.—Towards the end of the month strong colonies will be making preparations for swarming in southern counties. Hives, and all things pertaining thereto, should be in readiness. Racks of sections must also be ready. Last season many were put on and partly *filled* by the close of the month. Be careful to supply water. A thin piece of board, pierced with holes, floating on the troughs, will prevent drowning. A very useful and simple appliance for securing foundation in sections, the invention of Mr. Abbott, jun., is described, with engraving, in vol. ix., pp. 179 and 257, of *B. B. J.* We use no other. Our plan is to fill the sections with foundation and to leave a space of three-eighths of an inch between the sections and brood frames. By these means our sections have been well filled, with few corner holes, for bee passage,—the bees passing *beneath* the sections instead of *through* them.

For raising early drones, queen-rearing in nuclei, &c., see *Cowan*, pp. 111 and 154.

We defer our remarks on Swarming until next month.

Clean floor-boards, enlarge entrances of strong colonies, keep all snug and warm above, and refrain from too frequent examinations further than to feed, and unseal honey-cells, and to keep the brood chamber contracted, so that the bees may be able to cover all the frames.

Warning.—Remember that summer is not here yet. 'Severe snowstorms'—in London 'four inches deep,'—'around Windsor several inches,'—'at Aldershot the greatest snowstorm experienced for twenty years,'—'in Scotland a very heavy snowstorm.' East, west, north, south, and midlands, 'snowstorms and piercing north or easterly winds;'—such are the reports which reach us while we pen these lines. Compare with these the statements of that fine old Kentish bee-master, Robert Golding:—'In 1830, the weather, from the 20th to the 30th of March, was so fine that single hives increased in weight upwards of 3 lbs. each, and bees worked in wax, where room was given, as vigorously as at midsummer.' Also,—'March, in 1841, was equally favourable.' Not without reason, therefore, is our climate termed treacherous and uncertain. To those who have been unnecessarily 'overhauling,' 'requeening,' 'uniting,' and performing other possible, or impossible, operations, we fear the results will prove disastrous. Already such operators report numerous cases of 'spring dwindling,' 'loss of stocks,' &c., and no wonder. Alas! that so many enthusiastic neophytes in the art should imagine that because they possess *moveable-comb* hives, therefore these combs, with the poor bees and brood upon them, must necessarily be kept in *perpetual motion!* We hear of one energetic novice who manipulates his two or three hives by lamplight every evening, exhibiting exciting 'queen-hunts' to his astonished neighbours! *Verbum sat sapienti.* We do not hear that our poultry friends are constantly 'manipulating' their sitting hens, or 'counting their chickens before they are hatched!'

At this season of the year the best time for manipulating hives is in the evening, when the apiary is at rest. At this time there is less danger of incitement to robbing, and the bees are generally in a quieter mood, and less inclined to sting. We have never known queen encasements occur during evening manipulations. We do not intend these remarks to apply to our friend's proceedings, as related above,—by lamplight!—or to advise unnecessary examinations, but simply to *necessary* operations in the open air, during the evening, and in broad daylight.

STIMULATING AND SPREADING BROOD.

By this time, no doubt, many bee-keepers have commenced feeding their bees, with a view to stimulating the queen to lay. As a rule bee-keepers err in commencing too soon, and I have known some to examine their hives early in February, and then to at once commence feeding. Bees ought so to be wintered that they need not be examined until the middle of March, and should then be found strong, covering six or seven frames, with still some honey remaining unconsumed. It is very bad for the bees if they are neglected and have to be fed before this, because when a hive is disturbed to be examined, this of itself stimulates the queen to lay. A strong hive undisturbed may have a small patch of brood in the centre of brood-nest even at the beginning of February, and this will spread slowly, but as soon as the hive is disturbed the brood increases very rapidly. Even hives having no brood at all, when examined will be found, if inspected again the next day, to contain eggs in quantities. Now there is not much danger to a hive if the brood commences to expand at the proper time, but February is too soon to force it, and is most injurious to the welfare of the colony. The old bees are induced to leave their hives to look for food, and many of them perish from cold, and the numbers decrease before there can be any young bees to take their places. Bees, therefore, should not be interfered with before the middle of March, when a favourable opportunity should be taken to give them clean hives, and to make a thorough examination as rapidly as possible. The bee-keeper will then enter the condition of his hives in his note-book, and determine upon the course to be pursued. Supposing the hive to contain more combs than the bees can cover, some of the outer combs will be removed, and the brood-nest reduced by the division-boards, so as to crowd the occupied space with bees. I say crowd, because we must bear in mind that a fall in the temperature at night causes the bees to cluster more compactly and desert the outer combs, and there should be sufficient bees to cover every comb on the coldest night. If the bees have not been examined until the middle of March, most likely the hives will be found to contain three or four combs partly filled with sealed brood, and this first examination will very soon increase this quantity, especially if we have further stimulated by uncapping some of the honey-cells. As soon as the honey in the cells is exhausted, of course recourse must be had to gentle feeding, and care must be taken that the bees

are not without food. If the bees are not able to get pollen, it must be supplied to them artificially until they are able to obtain it. Now if the bee-keeper wishes to make the most of his bees he will not be satisfied with stimulating only by means of gentle feeding, but he will force the brood to spread much more rapidly than it would do if left to itself. I have purposely deferred saying anything about spreading the brood until this month, as I consider it is quite soon enough to begin now. The operation of spreading the brood is very simple—so simple, in fact, that bee-keepers are perfectly reckless with regard to it, and go on at such a rate as to entirely ruin all their prospects of obtaining honey, instead of having their hives at the time of the honey-flow so strong as to be able to collect a large quantity of it. Persons have denounced spreading the brood; and no wonder, when their experience has been so disastrous. I know a number of bee-keepers, who ought to have known better, destroy their whole apiaries by injudicious brood-spreading. It is now more than eleven years ago since I first made known the way I then adopted by spreading the brood, to have my bees in a condition to take advantage of the early flow of honey, and I have carried out the same plan ever since with most beneficial results. In the *British Bee-keeper's Guide-book* I take particular care to caution bee-keepers as to the dangers to be guarded against. By experience I had found these out, but because there are certain precautions absolutely necessary to insure success, it is certainly not a reason for giving up the operation altogether. If the instructions are faithfully carried out there is very little risk attending it. The whole secret consists in having the space occupied crowded with bees, so that, however cold it may be at night, the bees can still cover the outer combs. If we examine the hives at the beginning of April, and find brood, say on three combs, we can uncap the honey-cells on the comb having the least brood, and place it between the other two. The effect of this will be to make the queen deposit eggs round the brood and extend it on the combs to a distance greater than that occupied by the brood on the other two combs. In the course of a week the hive, if examined again, will be found to contain brood on four or five combs. Those containing the least brood have the honey-cells uncapped, and are, in their turn, placed between those containing the most brood. All this time the division-boards are kept in the same place, and the number of frames not increased, but those in which the brood is contained can be manipulated until every comb is filled with brood. By this time numbers of young bees will be hatching out, and when the space begins to get over-crowded—and not till then—insert an empty comb in the middle of the brood-nest. As soon as there is room for another it can be given. In this manner much more brood can be raised than if the bees were left to themselves, and we have a young population ready for the early harvest.

It is evident that unless the whole of the space is crowded with bees, the brood in the outer combs would perish from cold, and this is the great danger to be avoided. I would also recommend that on no account should the chaff coverings be removed, as there should be perfect ventilation; and the moisture should not be allowed to condense in the hives. Our Swiss friends winter their bees without difficulty on account of the dry climate, and have not the trouble we have in spring; and experience has taught me that hives with ventilation through chaff in the spring have done much better than those not having it.

The above remarks respecting stimulation and brood-spreading apply more particularly to the south of England, where the honey harvest is very early, and if the right time is missed very little honey can be got. Bees left to themselves do not increase rapidly until the honey-flow commences, and this is precisely the time they ought to be gathering the honey, instead of only preparing for it. In some places there is only one yield of honey, and that early in the spring, and it is highly important that bees should be ready to start storing it in sections as soon as it arrives. In the north, where the honey harvest is not till June, or even July, stimulating the bees is not so important, as they frequently collect enough to keep them going, and the brood spreads naturally. Let me urge bee-keepers again not to give up spreading the brood, but to do it with extreme caution, and I am sure they will be amply rewarded by the prosperity of their hives for the extra care bestowed. Those who cannot faithfully carry out the above instructions had better not attempt it, but be content with only stimulating.—Thos. Wm. Cowan.

THE HONEY COMPANY.

Criticism is always useful; and, as several letters have appeared in the *Journal* against the formation of the above Company, the following unprejudiced opinion, which appears in the *Bee News*, edited by Herr Gravenhorst, the well-known German bee-keeper, may perhaps interest some of your readers. — George Walker, *Wimbledon*.

'Englishmen are, like the Americans, practical people, and therefore take up a thing from the practical side, viz., from that which is of most use. Therefore they have, years ago, founded a well-knit Central Society . . . . . which represents, in every respect, the interest of bee-keepers, and which forms a power which understands how to attain that for which it strives. It is only since the founding of such a central Society, that bee-culture has made such progress in England, which is followed from year to year by an increasing production of honey. In order to dispose, at a suitable price, of the harvested honey, the central Society has now undertaken to start a company, which is called the British Honey Company. . . . . We consider the formation of such a Company of endless importance, for by it the bee-keepers, as well as the public, are to be served. The latter is assured of receiving unadulterated goods, and the former not only know how to dispose of their honey at all times; they also get a good price for it, and are saved many cares, unpleasantnesses, and risk.

'Faithful to our given word, to bring what is good wherever we may find it to the knowledge of our readers, we communicate the above and join with it the request, that they would consider the thing; how we German bee-keepers can follow the lead of our English colleagues.

'The British Honey Company, that is, the Company which has been formed in England to procure a remunerative market for the honey of the bee-keepers of Great Britain, will be a great blessing for them, and chiefly will provide that the producers and consumers shall be brought nearer together.

'The editor cannot get rid of the thought of the founding of a German Company, and wishes in all seriousness to invite the German bee-keepers to approach the matter . . . . . but we are all the more persuaded that the German bee-keepers would gain much advantage from it, should we follow the example of England. The easier an article of sale can be sold, the better it will be paid for, the more and more quickly will this branch of industry flourish. Could we, who have honey for sale, always sell it to such a Company at remunerative prices, there is no reason why each of us alone should go to the expense of procuring pretty labels, bottles, &c., when a Company can manage all these much more easily, more cheaply, and better. He who would expect all the salvation of bee-keeping from a Honey Company, would doubtless be too short-sighted, as that depends upon many other and more important factors.'

COUNTY ASSOCIATIONS.

Reports of several of the County Associations are to hand and show the following list of members:—

Hertfordshire	404	Dorsetshire	173
Kent	376	Herefordshire	160
Staffordshire	355	Cornwall	151
Warwickshire	350	Gloucestershire	145
Buckinghamshire	339	Leicestershire	134
Norfolk	244	Bedfordshire	112
Derbyshire	236	Oxfordshire	103
Worcester	221	Huntingdonshire	91
Essex	213	Somersetshire	82
Surrey	211	Brecon	72
Hants and Isle of Wight	200	Cumberland	66
Devonshire	187	Shropshire	55
Wiltshire	184	Nottinghamshire	38
Cheshire	183	Yorkshire list not given.	
Berkshire	180	Northants list not given.	

COUNTY REPRESENTATIVES

APPOINTED TO ATTEND QUARTERLY MEETINGS OF THE BRITISH BEE-KEEPERS' ASSOCIATION.

BUCKINGHAMSHIRE.—The Rev. E. Clay and the Rev. S. R. Wilkinson.
BERKSHIRE.—Mrs. Currey and Mr. J. Bowly.
CHESHIRE.—Mr. Bush and Mr. Cotterill.
CORNWALL.—Mr. Charles Kent.
CUMBERLAND.—R. Ferguson, Esq., M.P.
DEVONSHIRE.—Rev. J. G. Daugar and Mr. W. Griffin.
ESSEX.—Mr. F. H. Meggy and Mr. E. Durrant.
HEREFORDSHIRE.—Mr. A. Watkins and the Rev. F. S. Stoke-Vaughan.
HERTFORDSHIRE.—Rev. A. Roberts and Mr. J. P. Sambels.
HUNTINGDONSHIRE.—Mr. J. Linton and Mr. J. Edey.
KENT.—Rev. T. Sissons and Mr. G. Allen.
NORFOLK.—The Rev. J. Blake Humfrey and Mr. W. H. Back.
STAFFORDSHIRE.—Mr. Percy Toynbee.
SOMERSET.—Rev. C. G. Anderson.
WILTS.—Rev. W. E. Burkitt and Mr. T. Herbert Clarke.

The above list is taken from the reports and information furnished by Secretaries. It is to be regretted that the names of the representatives are omitted in a large number of the reports. We shall be glad to add others upon hearing from the Secretaries of those County Associations which are not included in the list.

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee-meeting held at 105 Jermyn Street, on Wednesday, March 18th. Present: the Rev. H. R. Peel (in the chair), the Hon. and Rev. H. Bligh, the Rev. E. Bartrum, the Rev. F. S. Sclater, Capt. Bush, R.N., Capt. Campbell, H. Jonas, G. Walker, and the Secretary.

The Secretary reported that arrangements for the delivery of a series of lectures in North Wales was proceeding satisfactorily, and that the Rev. J. Lingen Seager had kindly undertaken this tour, which would commence on Monday, April 6th. Resolved that the best thanks of the committee be given to Mr. Seager for his kind offer. Further applications for lectures in Merionethshire and Cardiganshire were also considered. Upon the recommendation of the County Association sub-committee it was resolved that the Secretary be empowered to make suitable arrangements for carrying out these lectures.

The Secretary was also instructed to provide for a series of lectures to be delivered under the auspices of the Cumberland Association.

It was also resolved to make, if possible, arrangements for the attendance of a bee-tent and an expert at the Isle of Man Agricultural Show in July next.

The educational sub-committee presented their report, recommending that Saturday, May 16th, be the date fixed for the first-class examination of candidates desirous of gaining certificates; such examination to be held in London. First and second class certificates to be awarded according to the merits of the candidates. Candidates to give the secretary, Mr. J. Huckle, King's Langley, fourteen clear days' notice of their intention to compete, such notice to be accompanied by an entrance-fee of 5s. Only those candidates who have already gained a second or third class certificate to be entitled to compete at this examination.

The secretary was instructed to communicate with Mr. W. N. Griffin, the hon. sec. of the Devonshire Association, requesting him to read a paper at the next quarterly meeting.

The next meeting of the committee was fixed for Wednesday, April 22nd, at three o'clock.

NOTTINGHAMSHIRE BEE-KEEPERS' ASSOCIATION.

A lecture in connexion with the above Association was delivered on Monday evening, March 23rd, at the Church Schools, Farnsfield, by A. N. Calvert, Esq., C.E., on 'Bees and Bee-keeping: how to make it Pay.' The Rev. R. A. McKee occupied the chair, and, upon introducing the lecturer, pointed out the objects of the Association and the benefits to be derived therefrom. In the course of a very interesting lecture (which was illustrated by hives and all apparatus connected with modern bee-keeping), Mr. Calvert showed how bees might be kept to produce a profit, and described fully the working of a modern bar-frame hive. At the close of the lecture several persons joined the Association.

A vote of thanks to the lecturer and the chairman brought the proceedings to a close.

STAFFORDSHIRE BEE-KEEPERS' ASSOCIATION.

At a Committee Meeting held at Stafford on Wednesday, March 18th, it was decided that Mr. Rollins, the expert of the Association, and Mr. E. Clowes commence the spring tour as early after May 12th as the weather would permit: 105 members had made application to be visited. It was also arranged that in future the circulation of the *Bee Journal* be controlled by Messrs. Geo. Farrington, J. R. Critchlow, T. Cartwright, and the Rev. R. Rigden, to whom all complaints or suggestions should in future be made. A schedule of prizes was resolved upon for the show to be held at Tamworth on Aug. 25th and 26th, a copy of which will be forwarded on application being made to the Hon. Secretary.

IRISH BEE-KEEPERS' ASSOCIATION.

Spring Show to be held at Ball's Bridge, Dublin, on 7th April, and three subsequent days. Amongst additions to the Prize List we notice a special prize for lady bee-keepers, also one for the amateur hive-maker. The Annual General Meeting will be held on Thursday, April 9th, at 11 a.m., in the rooms of the Society for the Prevention of Cruelty to Animals, 36 Westmoreland Street, Dublin. The Report, which shows the Association to be in a very satisfactory condition, contains a suggestion which is to be considered at the General Meeting. It is

to hold monthly meetings, open to all members, at which papers could be read and discussed, and new inventions introduced to the notice of members. The exhibitions held in various parts of Ireland during the past season were most successful and encouraging. The yield of honey was enormous, and found a ready sale at remunerative prices. A great many new members have joined the Association. The Agenda Paper for the Annual Meeting contains twelve distinct notices; one to consider the desirability of changing the time and place of the Spring Show, another to appoint district representatives, &c.

BERKSHIRE BEE-KEEPERS' ASSOCIATION.

From the Annual Report of this Association we learn that it has made good progress during the past year. The number of members has increased, fresh ground has been opened up, and the thoughts of the members, as well as the general public, have been steadily drawn to the manifold properties and usefulness of honey, and its great adaptability to many useful ends.

The total number of members is 174. The receipts have been 103*l.* 4*s.* 8*d.*, and the payments 83*l.* 12*s.* 2*d.*

During the past year a handsome flag has been presented to the Society for its tent, by Mrs. Currey, of Avenue Villa, South-Eastern Avenue, Reading.

In April a Conversazione was held, by invitation of the hon. secretary, in the Foresters' Hall, Reading, to the members and their friends, which was very numerously attended and much appreciated.

A bronze medal at the Health Exhibition was won by the Rev. V. H. Moyle, and three second Prizes at the British Bee-keepers' Royal Association Stand at the Agricultural Society's Meeting at Shrewsbury, by Mr. Wm. Woodley; and also a third prize at Shrewsbury by Mr. M. Whittle.

Various additions have been made to the library, which now numbers thirty volumes.

Four members of the Society have gained third class certificates of proficiency in bee-culture during the year, viz., Mr. Fewtrell, of Reading; Mr. Webster, of Wokingham; Mr. Coleby, of Wargrave; and Mr. Cambridge, of Aldermaston.

The bee tent has visited fifteen places during the year, and the financial result has been a nett profit of 5*l.* 13*s.* 9*d.* to the Association.

Lectures have been delivered on bee-culture by the hon. sec. at several places, resulting in an increase of members, and also by him on 'Honey in its applied Forms.'

The Annual Show, a most successful one, was held in the Old Town Hall, Reading. It was opened by Mrs. Mount, of Wasing Park, near Reading. The schedule of prizes was the largest yet issued by any county association, and included a silver cup, and silver and bronze medals, notably for honey in different applied forms, as food, beverages, confectionery, sweets, medicine for man and beast, toilet articles, and other useful forms.

To Messrs. Huntley and Palmer the thanks of all bee-keepers are due for their having been the first to manufacture and bring out a biscuit, now well known everywhere, viz., the 'Honey Drop Biscuits,' which, as is observed in the last annual report of the British Bee-keepers' Association, 'promises to be an article of permanent value.'

Messrs. Fry and Sons, of Bristol, have also issued pure British honey chocolate tablets and creams. Messrs. Blatch, of Theale, honey beverages. Mr. George, Reading, confectionery. Mr. Thomas, Reading, honey toilet preparations, and Messrs. Cross and Cardwell, Noad, honey medicines.

During the show, on October 1st and 2nd, lectures were delivered by Otto Hehner, Esq., F.C.S., on 'Pure and Adulterated Honey,' and by F. R. Cheshire, Esq., F.R.M.S., on 'Bees as Fertilizers of Fruits.'

The thanks of the Society are due to the Rev. F. S. Sclater, hon. sec. for Bucks Bee-keepers' Association, the Rev. W. E. Burkitt, hon. sec. for Wilts Bee-keepers' Association, and Otto Hehner, Esq., who kindly acted as judges, as well as to F. R. Cheshire, Esq., for his lecture. Mr. Sclater was deputed by the British Bee-keepers' Association to act as examiner of the candidates for third-class certificates.

The show of bee flora seeds, by Messrs. Sutton and Sons, was most effective, and the prompt willingness with which Messrs. Bracher and Sydenham, Watson, Adnams, and others responded to the idea of exhibiting plate and china for holding honey was encouraging. A very great impetus has been given in the county generally this year by the exertions then made to promote bee-culture on improved principles.

OXFORDSHIRE BEE-KEEPERS' ASSOCIATION.

The expert for the Oxford district has just made his spring inspection. It is on the whole very satisfactory, but at the same time there are many things which need the careful attention of beginners—there are many of them in the University city just now. There is a large field for bee-keepers in and around Oxford; and that fact is just being realised, so that the members of the Association are rapidly increasing, and many who do not at present see the benefits accruing to unity are taking up the question of bee-keeping and making themselves practical bee-keepers. In respect to this class of the community, the *Oxford Times* of the 28th ult. says:—'An effort will be made to considerably augment the number of members of this Association during the coming months. Those who keep bees, and others who agree with the objects of the Association, are earnestly requested to join. The Hon. Sec., the Rev. F. C. Dillon, will be pleased to give any information.'

Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of February 1885, amounted to 5385*l.* [From a private return sent by the Principal of the Statistical Office, Her Majesty's Customs, to E. H. Bellairs, Wingfield House, Christchurch.]

THE HONEY COMPANY.

I am surprised to find that a number of people are finding fault with the Directors of the Honey Company because they 'reserve to themselves the right of dealing in foreign honey.' Now this commends itself to me as a most wise decision on their part, for more reasons than one. I will put a simple and very possible case. Suppose some season should prove an exceptionally bad one in England, and the Company was unable to meet the demand of its regular customers with home-gathered honey; are they simply to tell them they must go to some other market? Would it not be to the interest of all parties (and especially to the welfare of bee-keeping in England) that the Company should be able to buy up foreign honey and in some degree balance the prices and keep their regular customers until better times?

I earnestly hope that we shall hear no more of such a frivolous objection, and that it will not prevent people

taking shares in a concern which is based upon sound commercial principles, and is calculated to be of immense benefit both to bee-keepers and the public generally.—J. LINGEN-SEAGER, *Hon. Sec. Herts B. K. A.*

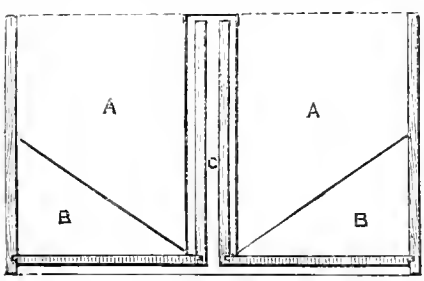
I am very glad to see that the British Honey Company is virtually formed. It will be of the greatest possible advantage, both to the honey producer and to the public. To the former as affording a ready market for his honey, and to the latter as protecting it against the adulterated stuff which has been imported from America and elsewhere in such large quantities of late years, and has brought such discredit upon the honey industry generally. I hope that all bee-keepers will give their best support to the British Honey Company, and not leave it to a few to bear all the burden and expense, whilst they reap the benefits of it.—HONEYCOMB.

A NEW SYRUP FEEDER, WHICH DISPENSES WITH SYRUP-MAKING.

I do not suppose there is a single bee-keeper who would not be glad to do away with all preparation in the way of cooking or mixing sugar and water, before being placed in the feeder. I have always hoped to do away with that trouble, and at last I am pleased to be able to state that so far as my own apiaries are concerned syrup-making is a thing of the past.

As a slow feeder and powerful stimulator, I find nothing better than my dry-feeding dummy, but there are times when it is necessary to feed a colony up quickly at the end of the season, or it is desirable to obtain a large number of sealed combs for future use, and then syrup-feeding must be resorted to; but how to do it so that both sugar and cold water could be placed at once into the feeder, remained an unsolved problem until in the spring of 1884 I designed a feeder for supplying some 40 lbs. at one time to be placed under the hive, and which received the sugar and water in the usual proportion without the slightest preparation. I now submit three different styles on the same principle for working above, and at the side of hive.

The 'Commercial Feeder' is 17¼ × 17¼-inch, being full size of my hive and eleven inches deep, and will hold between 30 and 40 lbs. The quilt is removed from top of hive, and this feeder with centre slot placed across the frames, covers the entire hive, and the quilting and cover is placed above all. The principle upon which this and the under-mentioned feeders work can best be shown by a simple section as per illustration. The uprights at



centre reach to within half an inch of top, and are the full length of feeder, with half-inch passage (C) between, where the bees come up, and go to work at the syrup standing in a similar space on either side. The thin perpendicular and diagonal lines are perforated zinc or tin, running from end to end, and are kept in position by half-inch square supports. The feeding passages are capped by a sheet of tin to prevent bees coming out when inserting food: and, moreover, no robbing can occur with either of the feeders under consideration.

The sugar is put in at A A, and the water as usual is then poured in and circulates in B B, until the sugar is dissolved, and syrup formed, which meanwhile rises in the two half-inch passages, where the bees readily utilise it. With the exception of the perforated sheets and cap, the whole is made of ⅝-inch pine, carefully tongued at all joints. The dotted lines show upper and lower margin of outside rim. This feeder can be made any size smaller to go under ordinary covers for placing over the hole cut in quilt, but care must be taken that the upper and lower chambers are in the same proportion to each other as here represented, or no amount of persuasion will make the sugar dissolve in the proper quantity of water.

The 'Frame Feeder' for placing at the side of combs is made either of all metal 14 × 8½ × 3-inch, or in wood, 14 × 8½ × 4½-inch; the top bars of each having an oblong opening cut out nearly full length and width for filling, such open space being covered by the usual quilts. Instead of being double this feeder is constructed as one side of above illustration, the low board representing the side with ½-inch passage at top to admit bees into a ⅝-in. space, running from end to end and from top to bottom. The inside of the front wall of the all metal frame-feeder is lined with perforated tin, to give the bees a good foot-hold throughout the ⅝-in. passage. The tin feeder takes about 3 lbs. sugar besides the water, and the other 5 lbs., being something like 5 and 8½ lbs. of syrup respectively.

The 'Amateur' (also holding nearly 9 lbs. food) is designed especially for those who prefer to feed over the hole cut in quilt, and is of circular form, 9 in. in diameter and 4 in. deep, with a 2-in. funnel in centre, surrounded by another of perforated tin or zinc, set ⅝ in. off all round, where the bees work at the syrup. The diagonal perforated sheet in this case is in the shape of an inverted cone, reaching from the bottom edge of the perforated funnel to the outside rim, 1½ in. below the upper edge of same. The centre funnel is lined inside and out with perforated material, to give the bees foothold, and this, including the ⅝ in. space all round, is capped with a piece of glass set in metal rim, while the whole feeder is covered with a lid of tin. The inside of funnel communicating with hive may be coated with wax, as an inducement for the bees to come up, or a drop or two of syrup may be let down at the time of filling. The 'Amateur' is very suitable for feeding up skeps, and a single feeder will finish off a considerable number if shifted from one to another, as each has sufficient. Of course there is no objection to the use of warm water, if anyone cares to go to the trouble of using it, though the action of the feeders will be found almost perfect with cold, and should a few lumps remain undissolved, such are thrown forward where the bees can make use of them.

As I have elsewhere stated, all fast feeders may readily be made to answer the same purpose as the regulating arrangements, by inserting a given quantity of food to last a stated time, according to the requirements of a colony, indeed such a proceeding is far preferable to depending upon atmosphere feeders, which a careful test will show cannot be relied upon to act as intended.

Now, while I have always insisted upon a soft, moist sugar as being best adapted to dry feeding, just the opposite is most suitable for the process now under our notice; loaf sugar being exactly the thing for these feeders, just as it has always been more readily converted into syrup than any other when prepared with boiling water.

As I have no pecuniary interest in these feeders, to save unnecessary correspondence, I will mention (with the Editor's permission) that I have had my own patterns made by Mr. W. P. Meadows, of Syston, near Leicester, and Mr. J. H. Howard, of Holme, Peterborough, either of whom will be happy to supply any further information that may be desired.—S. SIMMINS.

HIVE-MAKING.

By a Lady Amateur.

I fancy not a few of my sister bee-keepers are their own hive-makers, but I shall be pleased if I can induce a few more to become so by giving some details of the simple way in which I make mine. I have found it most pleasant work; besides which, there is the satisfaction of arranging things according to one's own pet fancies, of which bee-keepers are said to have a good many.

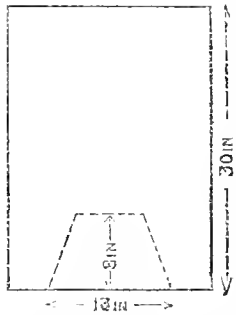
My hives are 30 in. long, on the 'Combination' principle, with a hinged roof-case, sufficiently deep to admit of doubling. The following are the priced materials for one hive; the boards are priced per running foot, as supplied me by a timber merchant:—

8 ft. best red board, planed one side, both edges				7	1	*d.* 2	*s.* 1	*d.* 4
9 ft. best red board, unplaned				11	$\frac{1}{2}$	2	1	6
14 ft.				9	$\frac{1}{2}$	$1\frac{1}{2}$	1	9
6 ft. 6 best white board, planed one side and both edges				9	$\frac{1}{2}$	$1\frac{1}{2}$	0	10
27 ft. best red lathing, unplaned; cut for neat 1s. for 36 ft. run say				$1\frac{1}{2}$	$\frac{1}{2}$		0	7
			Total for wood				6	0
4 iron legs for stand						4	1	4
3 doz. screws $1\frac{1}{2}$ in., No. 8, at $1\frac{1}{2}d.$; 3 doz. 1 in., No. 8, at $1d.$							0	$7\frac{1}{2}$
$9d.$ worth $1\frac{1}{2}$ in. brads, 11 hinges $1\frac{3}{4}$ long, and screws to fit, $2\frac{1}{2}d.$							0	$5\frac{1}{2}$
2 ft. 6 tarred felt (reputed 3 ft. wide, but only 2 ft. 8), at $9d.$ per yard							0	$7\frac{1}{2}$
1 doz. Abbotts' frames, and 1 top for plain dummy							2	$7\frac{1}{2}$
			Total cost of materials				11	8

The carrier's charge for bringing my wood seven miles from the town comes to $9d.$ a hive.

The village blacksmith makes the iron legs of $\frac{1}{2}$ in. rod. They are 6 in. long, and riveted into a 2×2 in. plate, with four screw holes. They are hammered up rather thicker at the foot end.

Floor-board.—Three lengths of 30 in. of 7×1 planed red. Sink the entrance-way before joining these by sawing down $\frac{1}{4}$ of the depth of the board as far as may be wished. I find the shape in the accompanying plan the most suitable. It will be necessary to smooth it with plane and chisel, finishing off with sand-paper. Join the boards by means of a cross-piece (a 21-in. piece of 9-in. board will cut four) at each end, allowing the front one to project $\frac{3}{4}$ an inch. Screw the legs on at the four corners, first with a brace and centre-bit, sinking holes for the reception of the riveted heads of the legs. The floor-board is loose from the hive.

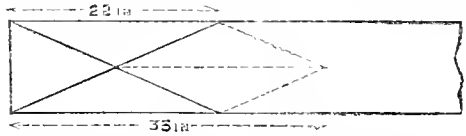


Body-case of unplaned red board. Two sides, 30 in. long of $11 \times \frac{3}{4}$; one front, 20 in. long, $11 \times \frac{3}{4}$; one back, 20 in. long, $9 \times \frac{3}{4}$ (this last to be flush with the sides at the bottom). Use three screws and two brads to each joint.

Inner Hive proper of planed white. Two sides, 20 in. long of $9 \times \frac{1}{2}$, to be fixed by means of brads through the case-ends $14\frac{1}{2}$ in. apart, the planed surfaces turned inwards.

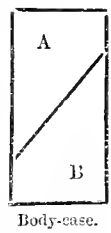
Roof-case of unplaned red. Two sides, 30 in. long, $9 \times \frac{1}{2}$; one front, 20 in. long, $9 \times \frac{1}{2}$; one back, 20 in. long, $11 \times \frac{3}{4}$ (this last to be flush with sides at the top). Join in the same way as the body-case; but to give rigidity divide the 6 in. remnant of 7×1, and screw it into diagonally opposite angles at the top.

Gable-ends of unplaned red, $9 \times \frac{1}{2}$—22 in. will cut one pair (while 33 in. will cut two pairs). Screw them on outside the roof-case ends, lapping them over the latter by 1 in. Pare the points off flush with the sides. Cut



30 in. of lath and fix narrow way up between the gables as a roof ridge, paring the points of the latter flush with it. Cut all ventilation-holes and line them with perforated zinc.

Laths are bradded on projecting $\frac{1}{4}$ in., to keep out the weather all round the bottom of the roof-case, and the sides and back of the body-case, their outer top edges having first been bevelled off. Also a plain lath is fixed to the body-case in front, immediately below that on the roof-case, and into these two the hinges are sunk. By means of a couple of picture-rings and a piece of string each side the roof is stayed, so as not to open beyond a right angle.



Body-case.

For *Entrance Slide*—two laths, A and B, are so bevelled that A being fixed to the body-case B can slide on the projection of the floor-board, A keeping it upright. B should be divided into two lengths.

The Alighter and Porch are identical—$21 \times 4\frac{1}{2}$ red; the inner upper edge of each being so bevelled that they shall slope at a suitable angle when fixed to the projecting floor-board and the body-case respectively. To prevent warping they should have a small slip of wood underneath across each end.

The Felt will need patching for either the front or back eave, the patch being well lapped. It is tacked on with large tacks, so as to lie closely down on the wood all round.

Little finishing touches will suggest themselves to the worker. In conclusion, let me beg my readers to remember, that in carpentering, as in needlework, it pays best to prepare the work thoroughly. Do not saw up wood until you have planned down on paper exactly what you want. Above all, do not spare the square, but mark with it your intended saw-cuts, even when sawing up the lathing.

QUEEN-RAISING.

Much has been said as to various ways of forcing queens, and obtaining them before required for swarms; but nothing is worse than making haste to establish a lot of weak nuclei at the expense of one or more good stocks, which, instead of being rendered useless for the entire season, as too frequently is the case, should remain a powerful hard-working force throughout, while under my process giving almost as much honey as if they had not been disturbed at all, and into the bargain, a much larger and more substantial rate of increase than those which had been deprived of brood and bees before attaining full strength, with the vain expectation of being to the fore with fertile queens.

A very simple way has occasionally been recommended for getting queen-cells started by removing the presiding queen; but such a process is indeed more simple than practical. In very many cases, especially with Ligurians, no more than one or two cells are started, and therefore much time is wasted for nothing. Even supposing the plan could always be depended upon, I should for my own use prefer to leave the queen undisturbed until after cells had been built and eggs deposited in them by her, under the natural impulse of swarming. As a rule queens raised in this way give the best results, and I find

no time lost by waiting for them; on the contrary, during the season, considerable gain over the usual forcing methods.

By the plan now given, the nuclei are started under the best possible condition, with bees and brood at the swarming point, and by exercising a little foresight we may always have our earliest cells from the best queens.

When any colony is selected for queen-raising let it be stimulated as an ordinary colony until the middle of April, till it has, say, six frames well crowded with bees and brood. Now do not on any account add another comb or sheet of foundation. Leave them to this limited space, and very shortly, finding themselves become more and more crowded, in all probability preparations for swarming will be made.

Watch when the cells are started, and on the fifth day from the time eggs are first found in them, or two days before they are to be capped over, (which occurs about the seventh day) make an artificial swarm as now shown.

Let the original hive remain exactly where it is, but remove from it all the frames of brood with adhering bees; place these in a new hive, and stand the latter in a fresh situation. If the day be not warm enough leave it until the next, or morning of the following day, which is the utmost limit, as the old queen will almost certainly lead off a swarm as soon as the cells are capped.

Leave the queen in her own hive, and with the bees clustering around the sides, those foraging, and the other workers which having flown will return, a good swarm will soon surround her. Give them four or five combs to start with, or part foundation.

Returning to the brood and bees removed to the new hive we shall find the combs covered with nearly all young bees, and with thousands hatching out daily, until in the ninth day after making the swarm it should be decided how many cells are to be saved. We will suppose six are required; and in that case it should have been ascertained that each comb had at least one royal cradle attached to it. If any have none, carefully remove one or two with a sharp pen-knife from such that may have several, cutting ½ in. clear all round, or on that side where attached, and insert some in a similar position on the combs requiring them.

Now having all nucleus hives in readiness, place one of the combs and bees in each, with one broodless comb of stores on either side of the same; cover up warm, with ½-in. entrance, and stand them about in twos and threes, that such may be readily united on removal of one or other of the queens; leave one, of course, on the stand lately occupied to collect the few flying bees that may have ventured abroad. I have found no other process so satisfactory as this, where the combs crowded with young bees attached to their queen-cells stay where placed, and are perfectly at rest from the first.

About two days after establishing the nuclei the young queens will begin to hatch, and in another ten days will generally be found laying. There is no need whatever to trouble about cutting out queen-cells if any of the combs contain more than are wanted; the bees will themselves soon tear down those not required.

Where any queen fails entirely such nucleus must be united at once to another, or a comb and bees with queen-cells from the next hatching should be added to it without delay.

If it is desired to continue breeding from the same queen, instead of making the swarm on the same day (fifth from eggs being deposited in royal cells) remove and insert her in another strong colony, crowding these also on to a limited number of combs as before, and then proceed accordingly.

The colony remaining on the original site, whether the new swarm as first described, or if no swarm is made, then the stronger nucleus which remains in the same position will be ready for work in the sections almost as early as those not disturbed for queen-raising.

Should it be desired to mate the queens to special drones these must be reared early in selected stocks. Place in the centre of the brood nest by April 1st a comb, about one-third of which consists of drone-cells. Limit the colony to a small number of frames, feed carefully, and drones will soon be on the way, and flying long before any other stocks produce them. It is the fairly strong colony crowded into a comparatively small space that will always produce the earliest queens and drones; while very powerful stocks with just enough, or a little more room than they really require, will not trouble themselves on that score until the season is well advanced.

It has frequently been suggested that a queen-cell or virgin queen should be given to a colony that it may quite prevent swarming. But such treatment frequently leads to endless mischief; the queen may be lost, and the trouble with such a powerful colony is rarely discovered until too late; and on the other hand if queen-cells had previously been started they will almost certainly swarm, notwithstanding the general belief that the new queen is allowed to destroy all her immature rivals; indeed, cells will frequently be constructed after she is inserted (in such lots as have not swarmed), and altogether the plan is very unsatisfactory, even if we do not consider the fact that without a good laying queen, bees become to a certain extent lazy, and even if the young queen becomes fertilised in due course, what have we then? Why, every probability that the remainder of the season will be devoted to providing food for a rapidly developing brood-nest, instead of honey being stored, and the production of young bees becoming more restricted.

On no account, therefore, risk the prosperity of a non-swarming colony by such a proceeding, though there is little harm in trying the same thing with that portion of a recently swarmed lot, consisting of all young bees moved to a new location, the old queen remaining with the hard-working portion, as should always be the case. As a rule, then, if young queens are wanted they must be raised in small colonies, obtained from stronger ones at the least possible expense to the latter, as I have herein endeavoured to show.

Having obtained such young queens in nuclei, my own plan is to let them stand as increase, and during the season give them the odd brood-combs that may be to spare as will be shown under swarming. About the middle of August some are united and the surplus young queens are then given to those full colonies whose queens are considered no longer profitable. Thus these young and vigorous ones are stimulated after the season is over, and the increasing population is fed on sugar ready for the next year, instead of using up vast summer stores to no purpose, as would have been the case if such queens had been placed in full colonies earlier.

The foregoing remarks apply mainly to those districts in this country, which are many, where the harvest ends with July; but with myself, where honey is frequently gathered during August in greater quantity than at any other time, those nuclei started early in the season, and occasionally assisted with brood, come along in good condition for the last spell of honey weather, which almost invariably occurs towards the middle of the month. Nevertheless, I do not as a rule insert young queens in full colonies between the end of May and middle of August.—S. SIMMINS.

NATIONAL BRITISH BEE-KEEPERS' UNION.

I see in the *Journal of Horticulture* a series of attacks upon the *Bee Journal*, the British Bee-keepers' Association, and the British Honey Company, by two individuals signing themselves '*A Lanarkshire Bee-keeper*' and '*A Hallamshire Bee-keeper*.' It should be known that the person signing himself '*A Lanarkshire Bee-keeper*' is William Thomson, of Auchinraith, Blantyre, N.B.; and that '*A Hallamshire Bee-keeper*' is John

Hewitt, of Sheffield, who also signs himself hon. sec. to the promoters of what he calls the National British Union of Bee-keepers. This much I know; but I should also be glad to know who are the *Promoters* of the National British Union of Bee-keepers besides Messrs. Thomson and Hewitt themselves.—A Reader of Both Journals.

[We have no knowledge whatever of the National British Bee-keepers' Union, or of its promoters, but are quite ready to publish a list of their names should Mr. John Hewitt forward one to us.—Ed.]

Lecture by Mr. Cheshire.—In the evening lectures on agricultural science, promoted by the Institute of Agriculture, we note that a lecture will be delivered by F. R. Cheshire, Esq., on 'Honey—its Productions and Storage,' on April 13th, at the Lecture Theatre in South Kensington Museum at 8 p.m.

Lecture.—On March 17 the Rev. J. Lingen-Seager gave a lecture on bees and bee-keeping at a Working Men's Club in Hackney Wick. There was a good audience, who seemed much interested in the subject. It would appear that on the Bank Holiday in August last a number of Hackney Wickers spent the day at the Vicarage at Stevenage; the bees were of course shown, and a request was made for a lecture. There is a probability of an attempt being made by a gentleman in the ensuing summer of setting up a hive at Hackney Wick, and if it succeed he will have a fair number of disciples.

Lecture on Bee-keeping.—A lecture was given in connexion with Herts B.K.A. in the Court House Schoolroom, Berkhamsted, by Mr. J. P. Sambels. Rev. A. Johnson occupied the chair. There was a good audience, and much interest was taken in the lecture.

Early Swarm.—Is it not very early to have a natural swarm of bees on March 14th? I have had one to-day, about 2 o'clock; a very good swarm, but I returned them and put the queen back into the hive; it was a bar-frame hive. I am afraid I shall have several swarms before this month is out, as some of my hives are very strong.—S. Cookson, *Sandbach, Cheshire.*

Honey Production Recognised in Herts as an Agricultural Industry.—We have reason to believe that arrangements have been made with the Herts Agricultural Society by which they will offer prizes at their forthcoming Show for the stimulation of honey production.

Experiments with Sections of Different Widths.—Dr. Miller, of Illinois, in 1883 experimented with sections 4¼ × 4¼ inches, and of five different widths. The ordinary pound sections, scant 2 inches in width, used with separators, averaged 14·32 oz. per section; the others were used without separators with the following averages: 1⅝ inches, 13·8 oz.; 1½, 11·76 oz.; 1⅜, 10·47 oz.; 1¼, 9·57 oz. It appeared to Dr. Miller that the sections 1½ inches in width suited the notions of the bees the best.—*American Bee Journal.*

How to Help Labourers to Commence Bee-keeping.—Instead of selling your surplus swarms, get the consent of a labourer to let you establish a stock of bees in good wood hive in his garden, on the condition that you take from them honey sufficient to satisfy you for value of bees and hive, in the meantime showing him the management of them. After you have received the value of them in honey hand them over to the labourer; thus he would, by waiting a time, get them for nothing. —Ab. Fish.

Cheap Hive.—A correspondent desires to bring to our notice a cheap ready-made 'makeshift' combination hive, very good for a bee-house, viz., Smith & Co's. coffee with chicory boxes. They measure inside 14½ inches broad, 8½ inches deep, and 18 inches long. The boxes are procured from grocers for 1*s.* each, and require very little fitting.

Echoes from the Hives.

Dunkirk, Faversham.—This is the 27th of March, and yet I have had no opportunity of examining the bees thoroughly. The temperature has always been below 50 degrees as yet, and without that temperature being recorded I never pull a colony to pieces to examine. Stores are very short, and candy has to be frequently given; most, if not all, colonies are breeding, and yellow willow pollen is carried in freely on fine days. I am afraid the fruit-blossoms will be out before the colonies are as strong with young bees as I could wish them.—John Martin.

Petworth, Sussex.—Bees have been fairly busy the last two weeks with the palm, now well out here. Weather very changeable. Saturday, March 21st.—West wind, cold, until the evening, wind then went down, and it was quite warm. Sunday, March 22nd.—Wind plain east. Has been snowing from 7.30 to 12, and is now raining. Wind very keen.—C. G.

Hunts, Somersham, March 18th.—The weather during the first fortnight of the present month has been very fine; bright and warm days have been followed by sharp frosty nights. Slight examinations having revealed a satisfactory state of things inside the hives, I did not, until March 4th, commence my usual plan of changing my stocks into clean and newly painted hives. I have now completed the overhauling and changing of my stocks, and have been gratified with their state generally. Most of them were well supplied with food, as I took very little honey from the stock hives last year. Foul brood I have never had, neither have I seen it, although I have examined stocks in many parts of England and Wales. An experienced bee-keeper some time ago said in the *Journal* that an expert ought not to have his certificate unless he understood the cause and cure of foul brood. How few bee-keepers understood either until Mr. Cheshire's ever-memorable address was given on the subject last year. Breeding is going on fast. Natural pollen is not plentiful here, so I have supplied artificial, and my neighbours', as well as my own bees, work on it industriously. Again my Anglo-Cyprian hive shows the strongest colony and the greatest amount of brood, although, when I left it last year after taking off the last lot of sections, I thought it a very poor stock. I have had a look round the neighbourhood, and I find stocks strong, but stores in many cases scanty. A few stocks have died of starvation. Stimulative feeding, I am pleased to say, has been commenced by some, and will shortly be resorted to by other of our cottager class of bee-keepers. I notice that in recommending the use of the Simmins' method of dry-sugar feeding it is stated that enamel-cloth should be placed on the top of the frames for condensing the moisture necessary for enabling the bees to use the sugar. I do not quite see it thus. If the enamel-cloth were the only covering I could understand there being plenty of moisture condensed and hanging in drops of water from the enamel-cloth over the bees, but these drops, I imagine, would run together and fall into the hive, and not be sucked up by the bees and then disgorged upon the sugar as is by many supposed. The oil-cloth is, as recommended, to be covered with quilts, and therefore there will not be condensation by a cold surface; neither do I think it necessary that the moisture should be condensed. It is a well-known fact that sugar or salt, placed in a damp place, quickly absorbs moisture. Before the bees can take the sugar it must absorb moisture, and that in sufficient quantity is found in the hive. It is undoubtedly necessary that the moisture should be kept in the hive during the breeding season, and that may be effectively done by the first covering being enamel-cloth, but not yet. If the bees are well packed with quilting, as they should be, of course some moisture will

pass through, but still I think, for present use, there will be plenty left in the hive.—C. N. White, *Hon. Sec., Hunts B.K.A.*

North Leicestershire, March 22nd.—The last fortnight has been very unfavourable for the bees, for though there has been a fair amount of sunshine there has not been sufficient warmth to ripen the pollen in the crocuses and coltsfoot now in bloom. Syrup feeding has commenced, and pea-flour is in full request.—E. B.

Oxford, March 23rd.—Weather too cold to do much good. Have had a few bright days, and the bees have made good use of them, bringing in pollen in larger quantities than ever. Everything is as yet going on very quietly, and there is nothing which needs any comment.—E. F. H.

Honey Cott, Weston, Leamington, March 25th.—About a fortnight ago, the sun being bright and warm, and the bees on the alert (not much natural pollen about, our nearest wood being a mile away), I thought I would begin feeding with pea-flour. I put some in the crocuses, and a lot on some shavings in an old skep; in less than five minutes the bees went for it by scores and hundreds, which they have continued to do ever since; it does not take them many minutes to clear a lot of it away, they shine in the sun like a lot of millers. I have placed a barrel of water where it has a tap placed so as to leak on to a slanting board in a sunny spot, which is very much patronised by the bees. I found, on further examination of stocks, two queenless, another also had been robbed before I was aware, these two appear to have been the same, as there was no trace of eggs or brood.—John Walton.

Frogmore, St. Albans.—I have to-day, March 28th, observed a drone emanate from one of my hives. The hive is very strong and well provided with food, which I left in last autumn. I have not fed them at all. Pollen is being carried in freely. Can it be that the hive is in readiness to throw off a swarm, wind and weather permitting?—Arthur B. Lipscomb.

Kingston, March 27th.—The hives in this district, so far as I can learn, have passed through the winter fairly well, but are short of stores now. The weather, on an average, has been dry and cold, consequently I have not given my own bees, or those of my fellow-members and friends, a minute examination, as I have been requested to do in the past. For the better advancement of bee-keeping in this district, I purpose suggesting to the various bee-keepers (whether members of the Association or not) the desirability of meeting together, either monthly or quarterly, to confer, or chat with each other on bee-keeping, so that each may profit by the other's experience.—Herbert Crawley.

Belfast, March 22nd.—Bees have generally wintered well, more especially in bar-frame hives. Plenty of young bees out, and breeding going on fast without any stimulative feeding. On February 28th there was sealed brood in four frames of one of my own hives; bees at that time working on snow-drops.—Ierne.

Killarney, March 18th.—I examined my stocks on the 1st inst., and found them very strong. I also found that there has been no winter during my experience in which the bees have consumed less food than the last. We have had frosts at night for the last fortnight, but the days were fine, and the bees very busy bringing in pollen, but to-day it is intensely cold, with a north wind and showers of snow and sleet.—M.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Jno. Bishop.—*Time for Artificial Swarming.*—From beginning of May to end of June, according to season, weather, and strength of stocks. When these conditions are favourable to natural swarming then is the time to swarm artificially.

Porpoise.—*Inverted Frames.*—The theory of this plan is that the cells, having a downward inclination, are unsuitable for storage of honey, which will, therefore, be deposited in supers. Brood will be raised in the inverted combs, but the bees will, as they have the opportunity, reconstruct them.

Rev. W. W. Flemyng.—1. *Wire.*—Yes, the wire is exactly similar to that we use. 2. *Piercing holes for Wire.*—For piercing holes in the ends of the frames use the smallest bradawl you can procure, and make the holes as near together as possible, so that the doubled wire may grasp firmly the foundation. 3. *Foundation for Supers.*—No; we prefer the thinnest foundation that can be procured, stamped with worker-cell base. We do not think you could obtain drone foundation for sections, but if you could, it would be unwise to use it, as it would be an inducement to the queen to enter the sections. 4. *Inserting Foundation.*—We do not know: Mr. Hooker would inform you; but we believe that he *now* inserts foundation by driving two brads into a bench, or table, at a distance of about six inches asunder. The saw-cut in the top-bar of the inverted frame is placed upon these brads, and a slight turn, forcing it open, the foundation is slipped into the cut, and the frame being allowed to revert to its former position the foundation is firmly held in its place. 5. *Foundation-fixer.*—A small machine called a 'foundation-fixer,' an American invention, is much used for fixing foundation in sections, and may be obtained of most dealers in appliances. If a less expensive apparatus be desired, a very simple but effective appliance, the invention of Mr. Abbott, jun., will be found described and portrayed in the *B. B. J.*, vol. ix., p. 179. We have used this ourselves with perfect satisfaction ever since it was made public, about four years ago. 6. *Transferring.*—Your bees may be transferred to clean hives on any mild warm day. See 'Useful Hints' in our last issue. Let it be done quickly, and carefully, to avoid robbing and encasement of queens, which generally go together.

Observatory Hive: *Mr. Blow's.*—1. The inside width between the glass should be 2 inches. 2. What is termed 21-ounce glass is thick enough, though plate-glass is better, and should be $\frac{1}{8}$ or $\frac{1}{16}$ thick. 3. We prefer entrance from the centre of hive. 4. Walnut, mahogany, or oak. 5. Certainly line the shutters with flannel or baize. 6. In a three-bar hive Mr. Blow puts two ventilators, each $1\frac{1}{2}$ inches diameter, and makes arrangements so that they can be closed if needed. A feed-hole at the top, too, is very desirable.

Kangaroo.—*Encasement of Queen.*—The encasement of your queen was no uncommon event. See similar cases recorded in another column, under 'Useful Hints.' These encasements, during the early spring manipulations, in most cases, are caused by an attack of robbers. The excitement, commotion, and loud humming of the bees under examination, naturally attract visitors from other colonies; and it is a well-ascertained fact that bees will encase their own queen on the entry of strangers into their hive, to preserve her from danger or, perchance, from death. In caging the queen you acted wisely. There is always great risk in closing a hive while the queen is encased, or, indeed, in leaving her under encasement at any time. To avoid the danger in future, manipulate in the early part of the evening, when bees have ceased to fly, and 'When 'twere done, 'twere well 'twere done quickly,' but, let us added also, *quietly*. There is no fear of your queen having been killed.

Sugar.—M. W. H.—Nos. 1 & 2 will make excellent syrup for bee-feeding; but are not suitable for dry sugar-feeding. F. Harper.—The sugar forwarded will answer your purpose of dry-sugar feeding.

W.—Four samples. No. 3, Porto Rico, good for dry sugar feeding. Nos. 1 and 2, Duncan's Pearl, for syrup.

J. P. B.—1. *Smokers.*—There is no 'Raynor Smoker.' Probably you allude to some of the cheap, imperfect smokers, put forth of late. The cold-blast is a very good smoker, but we consider the imported American 'Bingham Smoker' the best, and the cheapest, in the end. You do not say what fuel you use. Touchwood is apt to give out flame. Try brown paper, loosely rolled. 2. *Floor-boards, &c.*—Floor-boards should be cleaned at once. There is no danger of chilling brood by removing the hive from a soiled to a clean dry floor-board. If done at evening, not a single bee need fly. Gently raise the hive from the board by small wedges; after a few minutes, pass between hive and floor-board a stout goose-quill saturated with carbolic acid solution, or blow a very little smoke between the two, and gently remove the hive to the clean floor-board. Delay the removal of the quilts, &c., if the weather is cold, and the season late. Bees and brood *may* be chilled by opening the hive from above, by manipulating and dividing the brood-nest, in unseasonable weather, but never by a change of floor-boards! Hybrids are proverbially vicious, but under quiet, fearless treatment, they soon become gentle, and easily manipulated in well-made hives, where no jerking or jarring is necessary.

Africanus.—1. *Finding the Queen.*—Practice alone will enable you to find queens. A patch of white or red paint has been placed on the thorax of the queen, by some, but it is either quickly removed by the bees, or causes encasement and destruction of the queen; hence it is worse than useless. Practise, at first, on your smallest colonies. Do not smoke the bees at the entrance, a little smoke over the frames is sufficient. Manipulate very quietly, so as to cause no disturbance. When bees are rushing wildly from one side of the hive to the other, leaving the combs, and running over the floor-board and the hive-sides, it is next to impossible to catch a sight of the queen. Remove the first frame, without jarring, and set it aside. Quietly draw half the remaining frames to the side of the hive, thus creating a space in the centre of the brood-nest, and *there* begin your examination of each frame separately, and you will soon learn to find a queen. 2. *Drone-traps.*—Drone-traps are so little used, and so various in construction, that it would be impossible to describe them. Their principle is that of a box, formed of perforated zinc, attached to the entrance of the hive, through which the worker-bees can pass, but the drones cannot, and so, in their struggles to find an exit, falling into a lower compartment of the box, from which they are unable to escape, they are captured and destroyed. We do not advise their use. Remove all drone-combs from your hives, supplying their place with full sheets of worker foundation, and you will have no occasion for drone-traps. 3. *Arrangement of frames.*—The arrangement you propose is the best. Ten frames for the brood-nest is sufficient, and above and behind these, sections may be placed. 4. *The Bee-louse.*—A little carbolic powder rubbed into the quilt, on both sides, will not injure the bees, and will drive away, or destroy the bee-louse. Or you might try the so-called Persian insect powder, which is simply Pyrethrum (the herb feverfew) dried and rubbed into powder. 5. *Perforated Zinc.*—There is no necessity whatever for perforated zinc under sections. It impedes the workers, and with the use of worker foundation and plenty of room below, there will be no superabundance of drones, nor any fear of the queen ascending. 6. *Sugar.*—The enclosed sample of sugar is adapted both for making syrup and for dry-sugar feeding; but it would answer better for the latter purpose. Thanks for the Graaff Reinet paper. Dr. Stroud's publication is to hand, and will receive notice: to him, also, thanks.

Devon.—You cannot do better than act in accordance with your suggestion.

W. D. and C. W. H.—*Honey Company.*—You will find in our Editorial, 'The British Honey Company,' p. 107, your queries more definitely, and we trust more satisfactorily, answered than in our last. We shall be pleased to receive your suggestions. 'Rome was not built in a day.'

W.—You may return the combs to the bees at any time after spraying with solution of phenol.

Barnaby Rudge.—1. *Sugar for Dry Feeding.*—Mr. Simmins recommends Porto Rico, but any other sugar would no doubt do, the crystallised raw varieties in preference. Commence now. 2. *Queen-raising.*—Where several stocks are kept, it undoubtedly pays to devote one or two to queen-rearing for requeening the others instead of letting each rear its own queen and be without eggs laid for three weeks. 3. *Incitement to Robbery.*—The plan of placing food about out-of-doors is easy, but may lead to robbing. 4. *Elm.*—Elm is not fit for hive-making; it shrinks and twists very much. 5. *Doubtful Combs.*—Combs removed in autumn from diseased stocks had better be melted up at once, and not returned to the bees. 6. *Willesden Card.*—The Willesden paper should have been painted to prevent its absorbing water. 7. Alley's book on Queen-rearing may be had from Messrs. Neighbour, Regent Street. Its price is 5*s*. You would find it useful: it contains the result of above twenty years' experience. 8. *Time to form Nuclei.*—When they are strong enough to be ready to swarm, and when drones are present in some of your hives.

E. Cardwell.—It would be desirable to let the bees swarm, and after twenty-one days transfer. (See reply to F. J. C.)

Iota.—*Treatment of Skep to get Honey.*—Presuming from your letter that you do not desire increase of stocks, but simply honey, you may adapt a board to the top and work some sections; or, if you want extracted honey, fit up some shallow frames with old tough comb and use as a super, extracting as fast as filled. If the skep swarms return the bees. 2. *Manipulating Bar-frame Hives.*—Yes; you cannot get on without smoke.

A. Clark.—*Stimulating.*—Give them syrup in small quantities.

H. Parry.—1. *Extracting Honey.*—If you leave it for a short time all the pieces of wax will float upon it, and may be skimmed off. Do not expose cuttings and cappings of comb outside the hives; it is likely to lead to robbing. Give it in the hives at the back of the divider, leaving a space under it for access by the bees. 2. *Supers.*—If you give the sections at the rear of the brood-nest they are more readily accepted, and then should be placed in the racks without disturbing the bees clustered in them.

J. E. L. Gilbert.—1. *Extracted Honey.*—The doubling system undoubtedly gives a larger harvest. 2. *Extractor, Metal Ends.*—You may easily remove the ends, and let your frames lie flat against the cages, and that is a better plan than altering the cages. 3. *Stored Combs.*—Extract the unsealed, and the sealed honey is quite proper to give to the bees. Uncap the cells and place behind the divider.

Ierne.—1. *Foundation in Sections.*—Use the thinnest foundation, and as even this is not always worked out by the bees, but the cell walls erected on the guides, it is not advisable to use too large pieces. They should come nearly into the corners at the top and extend about half an inch down. Be sure it is fixed firmly, so as not to give way. 2. *Size of Standard Frame.*—

14 inches long and 8¼ deep from underside of top-bar to underside of bottom rail.

ENQUIRER.—*Number of Hives on piece of land nine yards square.*—You could put three rows of four or five each, and leave a fair amount of room for getting about.

DR. WALLACE.—1. *Moving Hives by Swarming System.*—Yes; you can do it at swarming time, say June. Remember that a swarm, *i.e.*, bees without combs, is not the same as a divided stock out of a frame-hive. 2. No; your plan is not correct: you would have so weak a stock as to be practically useless.

FENMAN.—*Examination Required.*—Probably the two hives which have no brood are queenless. When your other colonies are at work and carrying in pollen vigorously, notice carefully these two, and we think you will find them listless and scarcely working at all, carrying in no pollen, or only very small pellets now and then. If this be so, then thoroughly examine every comb, and if no queens are found unite them to your other colonies. *Old* queens often die in winter.

H. W.—*Position of Supers.*—The American cloth, or quilts of any kind whatever, must be removed, and the supers, or section-racks, placed upon the frames. If a honey-board is used it is placed upon the frames, and the section-rack upon it.

C. LAKE.—*Loss of Queens.*—The first queen was lost, by some mischance. She might have led off a swarm, unobserved, or she might have been destroyed by robbers. The second queen, seen on the wing, in October, was her unfertilised successor, in search of drones, and, failing to meet them, no doubt she perished during one of her aërial flights.

M. H., *Freshford, Bath.—Treatment of Stocks.*—You treated the two colonies after the most approved fashion. We recommend, however, as soon as the weather becomes mild and warm, that the queen should be removed from the three-frame colony, and that the three frames, with combs, bees, and brood, should be united to the other colony, by placing them on *both sides* of the four frames, with as little disturbance as possible. Let this be done towards evening, and, immediately afterwards, feed with warm syrup from a bottle-feeder, and repeat the feeding on alternate evenings. By these means you will probably obtain one strong colony. By keeping them as two you will probably lose both. Blow a little smoke in at the entrance after uniting.

C. GILBERT.—1. *Died through Neglect.*—The bees, from all that appears, have died through want and neglect. The combs forwarded I have carefully microscopically examined, and they seem to contain no traceable disease: but the *Galleria mellonella* larva abounds in them, while they also swarm with an *acarus*, very beautiful from the microscopist's point of view, since the long hairs adorning its body are pinnated in the most curious and interesting manner conceivable. If I needed bees, I should not at all hesitate in making the purchase because these stocks have died. 2. Allow the bees to swarm, and twenty-one days after transfer them.—F. C.

H. J., *Kilmington.—Foul Brood.*—The comb is very decidedly foul-broody. We are sorry to say your other bees are in danger. Read replies given previously in cases similar to your own, and commence to attempt the cure of any stock in which you may see the disease manifesting itself.—F. C.

R. C.—*Death of Drones.*—The bee forwarded is a normal drone that has died from the extrusion of its organs. The discovery is singular, considering the time of the year, but by some possibility last season the drone may have got into an awkward corner, and in its excitement, whilst endeavouring to regain its liberty, the accident, which is fatal, may have arisen. Excitement from any cause, or violent effort, frequently thus occasions the death of drones.—F. C.

W. M., *Paignton.—Bacillus Alvei.*—The comb is very badly infested with *Bacillus alvei;* almost all the cells of those forwarded contain millions of spores. The bees, themselves, are probably dying of the disease, and hence their rapid decrease. We should, if they are sufficiently strong in numbers to give hope of survival, strengthen them by brood from another stock, and then treat them with phenol. It would be risky to unite them to another stock.—F. C.

F. J. C.—1. *Time for Transferring.*—Although it is generally recommended that this should be done twenty-one days after swarming, for the reason that there will then be no brood to damage, still it can be done at any time when the weather is warm. Avoid exposure of the brood or the queen to chilling air, tie the combs up into close contact with the top-bars of the frames, fill the frames completely with the combs as far as they go, and take care that the midribs of the combs are in the centres of the top-bars. 2. Your proposed plan would not answer. 3. No; alighting boards are best left unpainted.

ONE INTENDING TO COMMENCE BEE-KEEPING ON THE HUMANE SYSTEM.—1. *Pitch Pine for Hives.*—There is no particular objection; but it is very heavy, especially for roofs, and more liable to draw with the sun than red pine. 2. *Salicylic Acid.*—You can make solution of salicylic acid, or rather of salicylate of soda, by the means you name.

A. FISH.—*Drone Comb.*—No; you need only have drone-comb, and consequently drones, in one hive; and indeed, if you have neighbours whom you know to have drones, you need not have any. Do not insert a frame of drone-comb, if you do it at all, before the third week in April. Then place in middle of brood-nest if you want drones reared at once. 2. *Passages under Dummy.*—You can give water or food behind a dummy; but we are doubtful if the bees will accept pea-flour from that position.

MISS DALY.—1. *Giving Combs of Honey.*—Give them behind the dummy, which raise a quarter of an inch to give access to them. Unseal the honey first. You may give them now. You can give dry sugar now, either to stimulate or to provide food for those needing it. 2. *Pond of Water.*—We should advise you to provide water for your bees in shallow plates, with stones for them to stand upon, rather than let them have to frequent the pond, into which many will be blown and drowned. 3. *Covering Sections.*—As a rule cover up warmly; but if you find the bees on very hot days clustering outside, try the effect of a little ventilation, and cover again if the weather should become cool. 4. *Propolisation of Sections.*—Vaseline is said to prevent propolis sticking. The closer the fit the less will be used. 5. *Position of Sections.*—It does not matter, but, as hives are generally inclined slightly the way of the frames, it is as well to place the sections the same way.

M. ESSEX B.K.A.—*Purifying Wax.*—Straining through cheese-cloth does not remove the pollen, &c., which cause the dark colour. The fine particles can only be separated by keeping the wax hot for sufficiently long time for them to subside. The wax must be placed in a deep vessel well wrapped up to retain the heat. So long as heat is *applied* circulation is kept up and the dregs will not subside. Only a very small quantity of acid should be used, sufficient to render the water very sour to the taste. Refer to p. 411, vol. xii.

We much regret that through press of matter communications from H. T. Spice, J. Dann, B. Flatman, E. B., R. P., C. Warden, H. Dobbie, H. W. Lett, R. R. Godfrey, J. Garratt, and others are postponed to our next issue.

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AND APPLIANCES.

(*As described on page 22, Vol. XII., British Bee Journal*).

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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

[No. 168. VOL. XIII.] APRIL 15, 1885. [PUBLISHED FORTNIGHTLY.]

Editorial, Notices, &c.

THE BEST MEANS OF DISPOSING OF HONEY.

We publish the letters of Messrs. Godfrey and Ward (see pp. 133–5) as coming from old friends and supporters of the British Bee-keepers' Association, from whom we are sorry even to have to differ. We cannot, however, help saying that these letters appear at a singularly inopportune time. Had they been written in the summer or autumn of last year, when the question of the desirability of forming a Honey Company was being discussed, they might have been useful contributions to that discussion. Appearing at the present time, when the British Honey Company is firmly established, and commencing active operations, they only convey the impression that the writers wish to undo what has been already done in this direction, and that they make their attempt when it is too late to be successful.

The Directors of the Honey Company have not undertaken the duties imposed upon them of their own choice, but through the force of circumstances and at the request of a large number of British bee-keepers, and in our opinion they *deserve* (if they do not *receive*) the thanks of the bee-keeping public. No defence or apology is required on their behalf for accepting office. It is well known that for many years past the British Bee-keepers' Association has been endeavouring to provide a honey market for its members. The resolution passed at the General Meeting of 1884 was fatal to this scheme. It not only shelved the question for a twelvemonth, but it gave the Committee no encouragement to renew their endeavours at the end of that period of time. The funds of the B. B. K. A. were clearly inadequate for such a purpose. The establishment of the British Honey Company is the consequence of that resolution. An attempt was made, and we must say a very brave and well-intentioned attempt to supply the deficiency, but private enterprise unaided by public capital can never ensure that prompt and ready payment which the British bee-keeper expects for his produce. The honey-producers turned again to those who had befriended them in former years, and begged them to provide some means for the disposal of their surplus honey with the certainty of prompt payment. The Honey Company has been formed in response to this appeal, and such is its history up to the present date.

The best means of disposing of honey is, no doubt, for the producer to find a purchaser in his own neighbourhood, and to sell it to him for the highest price he can get without the intervention of any third party. It very often happens, however, that such a purchaser cannot be found.

What is the producer to do then? Mr. Godfrey says that the best plan is to take it to a Honey Fair. We commend honey fairs, which we have always advocated and instituted wherever we have had the opportunity. A seller may, no doubt, get something more than the wholesale price for his honey if the fair is attended by a large number of wealthy people, and the demand for honey in the neighbourhood is equal to, or in excess of, the demand. There is, however, an uncertainty whether he will sell it all, and whether he may not have to pay his entry fee for nothing. There is always a large surplus of unsold honey at the end of every honey fair, which has to be got rid of by some other means. The Grantham Fair left a large quantity of Lincolnshire honey unabsorbed last year.

We can see no better means for a cottager to dispose of his surplus honey (supposing that he cannot find a local purchaser) than for him to take a share in a Honey Company in which he has confidence, paying for such shares with the honey which he has to sell. He will then reap all the profits which may accrue to the merchant or middleman. A provision has been made by the British Honey Company that shares may be paid for in honey in lieu of cash, and we are of opinion that this provision will soon enable the cottager to ascertain what is the best means of disposing of his honey, if he cannot find a purchaser in his own immediate locality.

We have not the space here to reply to all the objections which have been raised against the British Honey Company. Time will show whether these objections have any solid grounds or not. We are confident, however, that the Directors will do nothing to prejudice the interests of British bee-keepers, and we are equally confident that, having once put their hand to the plough, they have no intention of looking back. They must go forward now in the path which has been marked out for them, undeterred by the opposition of some who have 'lost touch' of the times, and who for reasons of their own wish to keep British bee-keeping within narrower limits than those of a National Industry.

THE PRICE OF HONEY.

However much we may agree with the principles of Free Trade in the abstract, and also as regards the occupations of others, when it comes to the touch of applying those principles to our own particular occupation, many, too many, believe in Protection. The farmer is certain that the only thing that is fair is to put a duty on all imported corn, while he would have free trade, pure and simple, in all those articles which he requires for his own use. The iron merchant, on the other hand, would like a duty imposed on all foreign iron, while he is averse to any duty on corn, &c. To arrange any system of protection that would be fair for all parties would tax the skill of the boldest financier, and would be practically impossible.

So with the article that concerns us bee-keepers —Honey. From the letters that have appeared in this *Journal* and other papers that discuss bee-keeping, we see that this harking back to Protection is ever apparent. The writers wish by some artificial means to keep up the price of honey, and they bewail the formation of the Honey Company as a danger to bee-keepers because they are afraid that it will virtually fix the price of honey, and that in the future, when the Company is selling honey, say at 8*d.* per lb., they will not be able to get 10*d.* and 1*s.* Now, as has been pointed out in a former number of the *Bee Journal*, the lower the price the greater the consumption, as the article in question becomes a necessity and not a luxury. We are perfectly aware that our opponents may retort—That is very true, we don't deny your facts or your conclusions, but have you forgotten that in former years the British farmer was prosperous when our American cousins sent us no wheat, or if they did, the duty on it prevented it competing against British wheat? The fallacy in this argument is apparent even to the typical schoolboy.

The farmer no doubt prospered under this iniquitous system; but even then his prosperity was more apparent than real, because he got more than the value for his wheat, and his seeming prosperity was at the expense of all those who were not interested directly or indirectly in land. The reason why the crash was so long averted was due to the fact that then, even more so than now, the agricultural income was greater than the income from all other trades; and, consequently, when the farmer was prosperous, it was only partly at the expense of the nation at large. It is often said, and we believe there is a large amount of truth in the statement, that it does not pay the farmer to grow wheat, as he cannot compete with the foreign supply. Assuming, for the sake of the argument, that this is a fact, what is the inevitable conclusion? He must grow those things which do pay, and those in which he need fear no competition, or, at all events, only limited.

So with regard to Honey. No matter whether we have honey companies, bee-keepers' unions, honey fairs, or any other mode of providing a market for honey, we may take it as a fact, that the non-bee-keeping public will not give 10*d.* per lb. for honey when they can get as good for 8*d.* or 9*d.* No matter how we continue to keep up an artificial value for honey, the crash will come a good deal sooner than later. To try and form, as a writer in the *Journal of Horticulture* (9th April) points out, a gigantic trades' union of all British bee-keepers will be certain to lead to only one result—failure. That we British bee-keepers have anything to dread from foreign competition, we mean as far as the extinction of the bee-keeping industry is concerned, is, in our opinion, as remote a contingency as the independence of Ireland. It will tend, no doubt, to lower the present artificial price of honey; but we have no fear that we shall not be able to sell honey at a considerable profit. It is the old story of Mrs. Partington and her mop. Do what we will, we can't war against nature and nature's laws; and it is as certain as the tides that you will not get people to buy in the dearest and sell in the cheapest market. Never prophesy unless you know, and so we will not venture to assert what the remunerative price of honey will be. Mr. Seager thinks it will be as low as 3*d.* per lb., others, less sanguine, think nothing under 10*d.*; if we take the mean between these two extremes, it will probably give us the price—at all events for the next few years; and with the increased knowledge of bee-keeping, we think that the larger amount of honey obtained will more than repay for the lowering of the price. We must take facts as we find them. No doubt if we had to recreate the world, we each and all of us could remedy several of its most glaring shortcomings; but we doubt whether the general result would be a success. At present there is a pressing demand for a market to which bee-keepers can send their surplus honey. Whether this can be best effected by a company, a union, or private enterprise, time alone will show. We believe, and that strongly, that the first is the most economical and the safest way: economical—because the expenses of such a company will be met by a profit of a few pounds per ton; and safest—because the too great success of such a company, as shown by their paying a very large dividend, will infallibly lead to several others being started, or to the producers refusing to sell their honey except at a higher price.

THE BRITISH BEE JOURNAL: PROPOSED WEEKLY ISSUE.

There is a time in the history of a hive when its inhabitants, from the increase in their numbers and the inconvenience consequent thereon, find the constraint of their dwelling so intolerable that they obey their natural instincts by swarming, seeking a fresh home and establishing a new colony. The law of development is ever at work. In the history of a journal advocating a progressive industry the effect of the same law is visible. We note this in the past history of our *Journal*. It has passed through various phases. Commenced in the month of May, 1873, it has, through the intervening years, kept the object for which it was established steadfastly in view; this object was 'the free discussion of all theories and systems in bee-culture, and of the relative merits of all hives and appurtenances, so that the truth of them may be established.' The work the *Journal* has hitherto accomplished has been great and important. It has ever advocated the humane system of bee-keeping; it has assisted in raising a new industry; it has given to many a fresh zest to their lives by directing their attention to a new mode of obtaining an addition to their incomes; it has supported the institution of the British Bee-keepers' Association with its affiliated county societies; it has endeavoured to establish the formation of agencies for the disposal of bee produce; it has evoked the zeal, and energy, and enterprise of many to the development of apiculture as a science and an art; and we may obtain some idea of what it has achieved by contrasting the position of bee-keeping of the present day with that of the past. Established as a monthly publication, it was found necessary in the course of time to convert the *Journal* into a semi-monthly, in order that it might be more abreast of its work. And now these questions press upon us: How far have we accomplished our mission? Can we make the *Journal* more equal to the exigencies required? Can we render it a more perfect reflex of the opinions of bee-keepers and the literature of bee-keeping at home and abroad?

For some time past we have felt that the 'cabined and confined' space allotted us is insufficient for our needs, and though at times we have endeavoured to remedy this by giving supplementary pages we confess that we have been unable to keep under the numerous contributions of our correspondents. The industry of which we are the exponents has made such rapid strides, so many have embarked time and capital in the production of honey, hundreds of pounds are now produced where formerly there were only tens, that we are forced to inquire whether we cannot more satisfactorily than before perform the duties incumbent on us.

It is not desirable that the communications received by us should be held over, even for a fortnight; the industry we represent is of such importance that everything in connexion with it should be announced without the slightest delay, as by postponing any communication the effect is frequently lost. We are pleased to say that the circulation of the *Journal* has increased beyond our most sanguine expectations, and it is still steadily increasing. Even as we are penning these lines our publishers inform us that their usual supply of numbers is exhausted, and that they require more. This is satisfactory to us as bearing evidence that our labours are appreciated, and it must be so also to those who use our columns as an advertising medium. It is likewise a cause for our gratitude to those who have assisted us by their communications, and those kind friends who have given us the support of their patronage, and who have recommended the *Journal* to those with whom they have come in contact. May their number be increased!

We have received from time to time appeals from our readers stimulating us to a more frequent issue; and seeing that our circulation is fast approaching that number when such a step may be justified, we feel it incumbent upon us to give this request our best and most earnest consideration. From all quarters we are ever receiving testimonials of the high appreciation in which the leadings and the teachings of the *Journal* are held, and we may assure our friends that it will ever be our highest ambition to continue to deserve their approbation. We shall be pleased to have the opinions of our readers as to the advisability of a weekly issue, and at all times to receive any suggestions which will render the *Journal* more perfectly and more truly what it aims to be—'The Bee-keeper's Adviser.'

SMALL FARM AND LABOURERS' HOLDING COMPANY.

On Friday, the 24th, a meeting will be held at Willis's Rooms to ventilate a scheme for promoting the cultivation of land by small proprietors. The promoters take cognisance of the cases of small farmers, of market gardeners, and of agricultural labourers; they also propose to encourage co-operative farming and labour partnerships. They naturally place the interests of the agricultural labourer in the forefront of their enterprise: and their plan, so far as he is concerned, seems to have been drawn up with careful regard for the circumstances of his position, and therefore for what is practical as well as expedient. We conceive that this will afford an admirable opportunity for proving the utility of bee-keeping as a means of assisting the agricultural labourer.

ADDITIONAL COUNTY REPRESENTATIVES

APPOINTED TO ATTEND QUARTERLY MEETINGS OF THE BRITISH BEE-KEEPERS' ASSOCIATION.

NOTTINGHAMSHIRE.—Rev. A. H. Halley. The number of members of this Association is now 71.
SURREY.—Mr. F. H. Lemare and Mr. P. Waterer.
WARWICKSHIRE.—Mr. J. N. Bower and Major Deakin.
WORCESTERSHIRE.—Mr. A. H. Martin and Mr. C. H. Haynes.

HONEY AS FOOD AND MEDICINE.*

The paper read by Mr. Cheshire, on 16th April, 1884, dealt with the first part of this subject, and in the dis-

* *Honey as Food and Medicine.* Lecture given at the meeting of the Vosges Club at Bau, on 7th January, 1885, by J. Dennler.

cussion that ensued Dr. Walker confessed his ignorance of the value of honey as a medicine; and Mr. Peel, in his remarks, said that he had applied to various medical men, who were in general accord, and did not disagree on this question, but stated their inability to grapple with the subject. So, having read this very interesting paper by Herr Demler, the President of the Strasburg-Engheim Bee-keepers' Association, we thought it would be of great advantage to British bee-keepers to translate it for the benefit of those of them who cannot read it in the original.

After discussing the great diversity in the colours of honey, due to the flowers upon which the bees feed, the time of year, and on the nature of the soil, he discusses the qualities of good honey, its tendency to granulate, distinguishing it from spurious honey, and the way of keeping honey for years by carefully storing it in cool cellars after it is skimmed, which process must be repeated if the slightest trace of fermentation appears on the surface. He advises making a solution of one part of salicylic acid to ten of spirits of wine, into which some unsized paper is dipped, then dried, and the vessels containing honey covered with this paper, and parchment over it.

To detect spurious honey, which usually contains glucose, he gives the following recipe:—Put into a bottle two tablespoonfuls of honey and three times as much spirits of wine, and thoroughly shake the mixture. Let it stand for some time, and a fine white deposit will be formed if there is any spurious honey, which is dextrine, while the pure honey will show no deposit, and will only be slightly altered in colour.

He considers honey as a food second to none, on account of its great solubility in the blood, its power of providing for the heating of the body and for the maintenance of life, and if not alone sufficient for the maintenance of life, is still one of the best known foods.

He strongly recommends honey as food for children, especially for those who are growing quickly, as it provides an easily digested food, and changes their pale faces and languid condition to a condition of rude health. It is also useful to the old on account of its heat-giving properties. 'Do you wish to enjoy a green old age? Eat daily the most precious food of the ancients—milk and honey. Crumble up a little white bread in a cup with some milk and unadulterated honey. This is the most healthy, the most nourishing, and the most relishing breakfast.'

Then follow some valuable recipes, which we commend to the notice of all those who care for dainty dishes. We have approximately changed the metrical system of weights and measures into English. The gramme (grm.) contains nearly 15½ grains, the kilogram (k.g.) is 2⅕ lb., and the litre nearly a quart.

(1) *Alsatian Gingerbread.*

1 lb. (½ k.g.) honey.
1 lb. (½ k.g.) flour.
2½ drams (10 grms.) bicarbonate of potash.

The honey must first be put on the fire in a saucepan till it begins to boil. It is then taken off the fire, and the flour well stirred up in it, and last of all the potash. If sweet gingerbread is wanted, you must whip up the white of an egg, and stir in ¼ lb. (125 grms.) of syrup or honey.

(2) *Basle Cookies.*

Prepare some dough as in No. 1 (which will keep for a year in a cellar); mix it with
½ lb. of shredded almonds (5 grms.),
1¼ drams of orange juice (3 grms.),
¾ dram of lemon juice,
2 grms. cinnamon, together with (1 grm.) ¼ dram of finely pounded cloves.

The whole must be carefully kneaded together and sifted, so that there are no lumps, and then baked.

(3) *French Honey Cakes.*

Heat in a saucepan 4¾ oz. (150 grms.) of pure sugar and ¼ pint (⅛ litre) of milk. When the sugar is dissolved, add 12 oz. (350 grms.) of honey and boil, mixing with it 1 lb. (½ k.g.) of fine flour, and 30 gr. (2 grms.) of bicarbonate of potash. Knead the dough thoroughly, and make a thick cake of it, and put in a dish sprinkled with some flour, and bake for an hour.

(4) *English Honey Cakes.*

Take 2 lbs. (1 k.g.) of honey, ½ lb. (250 grms.) of fresh butter, the juice of two lemons, and some ground nutmeg. Melt some butter, and well mix the ingredients together. Take 2 lbs. (1 k.g.) of flour, and make a dough, which must be lightly and carefully rolled out into cakes about ½ in. thick. Cut in pieces, and bake them lightly in butter.

(5) *Honey Fruit Cakes.*

Take 4 eggs,
5 tea-cups flour,
2 „ honey,
1 „ butter,
1 „ sweet milk,
2 teaspoonfuls cream of tartar,
1 „ baking soda,
1 lb. (½ k.g.) raisins,
1 lb. currants,
1 teaspoonful cloves,
1 „ cinnamon,
1 „ nutmeg.

Bake in an oven with a slow fire. These cakes will keep good for months.

(6) *Honey Tea-cakes.*

1 cup strong honey,
½ cup thick white cream,
2 eggs,
½ cup butter,
2 cups flour,
½ teaspoonful of soda,
1 „ cream of tartar.

To be made into a dough and baked slowly.

(*To be continued.*)

BLIGH COMPETITION.

Now that the second season of the Competition has commenced, it may be of interest to bee-keepers to know the present state of the apiaries of those competitors who still remain in the race, and from these *data* to be able to form an opinion as to which will be foremost at the finish.

We have received from the Hon. and Rev. Henry Bligh a short abstract from the diaries of those who have complied with all the requirements of the rules of the Competition, and present it to our readers.

Mr. J. Hedding, Sawstone, Cambridge, commenced on May 22nd, with a swarm of black bees (nearly, if not quite pure), weight 4¾ lbs., on 7 frames of foundation in a Combination hive with broad-shouldered frames. These being worked out on May 26, 3 more frames were added, and 2 frames of sections placed at rear of brood-nest without excluder zinc. On June 14th, these sections were nearly filled. On June 28th, took 6 sections filled, the other 6 were partly filled with brood. Put on crate of sections. July 16th, took 15 sections. Aug. 14th, took 13 sections, weight 8 lbs. Aug. 25th, took off super and inserted 3 frames with foundation. Sept. 13th, commenced feeding. Sept. 10th, divided the stock, giving a new queen to the old hive. Oct. 4th, a

fair quantity of brood, but bees rather thin in old hive. Feb. 24th, both hives all right and plenty of stores.

BALANCE SHEET.

Capital ...	...	£2	0	0	Hive, &c.	£0	18	2
Honey sold	...	1	15	8½	Bees	0	19	0
					Hive, &c.	0	15	3
					Sundries	0	12	3½
					Balance in hand	0	11	0
		£3	15	8½		£3	15	8½

Mr. S. Sprinks, Barn's Green, Horsham, hived a swarm of 2¼ lbs., on 6 frames with full sheets of foundation in a hive of which no description is given, on May 21st. On June 10th, he added two frames of sections and one with foundation. June 19th, added another frame and extracted from three. June 26, ditto. July 3rd, extracted 3 frames. Aug. 16th, extracted 3 frames, took away sections, only 3 full; made a fresh swarm and added a queen to old stock. Fed till middle of October. Oct. 15th, packed up both lots for the winter. March 1st, have not examined bees since October.

BALANCE SHEET.

Capital ...	...	£2	0	0	Hive, &c.	£0	15	8½
Extracted honey		1	3	10	Bees	0	9	0
Sections ...	...	0	4	6	Hive, &c.	0	13	1½
					Queen	0	3	0
					Sundries	0	6	9½
					Balance in hand	1	0	8¾
		£3	8	4		£3	8	4

Mr. W. Seabrook, Sutton. May 24th, put swarm, 4 lbs. 5 ozs. on 5 frames foundation. May 26th, added frames. June 30th, fed. June 7th, added frame. June 14th, young bees hatching freely; added frame. June 21st, extracted 5½ lbs. honey, and added box at top into which 4 frames of wood were lifted, added 2 frames foundation to lower box, and put excluder zinc between the 2 boxes. June 29th, extracted 7½ lbs., most of brood hatched in upper box. July 5th, extracted 6½ lbs. July 12th, extracted 5 lbs. July 19th, removed upper box, putting 3 of the frames in body box. Extracted 9 lbs. Oct. 19th, fed for last time. March 1st, no entry since October.

BALANCE SHEET.

Capital ...	...	£2	0	0	Hive, &c.	£0	17	3
Extracted honey		1	16	3½	Bees	0	17	3
					Doubling-box ...	0	2	0
					Sundries	0	3	6
					Balance in hand	1	16	3½
		£3	16	3½		£3	16	3½

Mr. T. Owen, Corsham, Wilts. Commenced May 30th, with 4 lbs. bees, first cross English and Italian, in hive with 10 frames. June 3rd, put on 7 sections. June 7th, put on 7 2-lb. sections. June 12th, took off 7 lbs. honey in sections. June 18th, took off 13½ lbs. of honey in sections. July 4th, took off 6½ lbs. in sections. July 16th, made artificial swarm. Aug. 22nd, found both stocks had plenty to winter on. Oct. 8th, closed hives for the winter, each had about 20 lbs. of honey. Feb. 20th, both hives all right, bees carrying in pollen.

BALANCE SHEET.

Capital ...	...	£2	0	0	Hive, &c.	£0	12	6
Sections filled ...		2	0	0	Bees	0	16	0
Extracted honey		0	6	6	Hive, &c.	0	7	6
					Sundries	0	2	7
					Balance in hand	2	7	11
		£4	6	6		£4	6	6

Rev. T. B. Garland, Ranby, Retford. On June 12th, placed swarm of 4 lbs. 11 ozs. in hive made out of old gasolene box on 9 frames of wired-foundation. June 13th, 4 sheets of the foundation down, but remainder well worked out; added two frames. June 14th, added 2 frames. June 18th, put on crate with 14 1-lb. sections. July 19th, took off 9 sections. Aug. 7th, removed crate of sections, 3 of which were filled. Divided the stock and added new queen to the swarm. Aug. 8th, queen when liberated, flew off, but fortunately settled again amongst her new subjects who received her well. Aug. 9th to 31st, fed and added some frames of foundation. Oct. 14th, prepared for winter, but in No. 2 found queen-cells some hatched out. Removed all, and hearing queen piping, removed her and added fertile queen. Oct. 16th, liberated the queen. Oct. 18th, found her safe. Dec. 15th, finished packing the bees. March 1st, have not looked at hive since December.

BALANCE SHEET.

Capital ...	...	£2	0	0	Hive, &c.	£0	8	4
9 Sections ...	...	0	13	6	Bees	0	18	9
					Hive, &c.	0	9	9
					Two queens ...	0	6	0
					Sundries	0	8	1
					Balance in hand	0	2	7
		£2	13	6		£2	13	6

Mrs. N. M. Mutlow, Tarrington, Ledbury. May 20th, commenced with 2½ lb. swarm in 10-frame hive, on 6 frames, and gave a little syrup for a start. May 24th, added a frame. May 30th, extracted 5 lbs. June 17th, extracted 4½ lbs.; removed queen on comb to Makeshift hive, adding 3 frames of foundation and shaking another frame of bees into new hive; put 2 frames of sections in hive No. 1, which still contained 5 frames of brood. June 27th, removed a frame with queen-cell and bees to form nucleus No. 3. June 30th, extracted from all frames except those with queen-cells; put crate of 12 sections on No. 1. July 2nd, gave No. 1 2 frames with foundation. July 12th, not finding queen in No. 3, exchanged their 1 comb for 1 from No. 2. July 19th, took 2 sections off No. 1; put frame of brood taken from No. 2 into No. 3. Aug. 16th, extracted 6 lbs. of honey and took 3 sections. Oct. —, found all 3 hives with plenty of stores and bees. Feb. 12th, examined hives, No. 1 doing well, No. 2 not so well, probably queenless, No. 3 doing better.

BALANCE SHEET.

Capital ...	...	£2	0	0	Hive, &c.	£0	16	0
Honey sold...	...	0	17	0	Bees	0	10	0
					Hive, &c.	0	5	0
					Hive, No. 3 ...	0	5	0
					Sundries	0	16	1
					Balance in hand	0	4	11
		£2	17	0		£2	17	0

(To be continued.)

PROPAGATION OF HONEY AND POLLEN-SECRETING TREES AND SHRUBS.

A considerable portion of the honey collected by bees is obtained from forest trees, fruit trees, and shrubs; for instance, there are distinct honeys known as lime-tree honey, hawthorn honey, holly honey, &c. But these different sorts with their peculiar flavour can only be obtained where any particular species of tree or shrub is grown in quantity. In one district holly may be abundant, in another hawthorn, and a third lime, sycamore, &c.; and if the honey is extracted, while any of these trees are flowering, it will be stamped with one particular flavour. It is said that of all honey gathered from trees or shrubs that of raspberry is the best. Lime-tree honey is in good repute, to secure the full flavour of this honey it requires to be fully ripened in the hive. The old school of bee-keepers considered this the source of their black—I was going to say honey, but really it can only be called an apology for the pure article.

I need not describe the propagation of fruit-trees, they can be purchased at the nearest nursery far cheaper than they could be raised by the bee-keeper; as also such trees as lime, sycamore, hawthorn, &c. Therefore I will only give the mode of propagating those trees and shrubs that admit of easy and rapid increase, for no doubt these find most favour by giving quicker returns for the capital invested.

Gooseberry, black, red, and white currants, and also the red-flowering currant (*Ribes sanguineum*), can all be increased readily by cuttings of the current year's wood. The cuttings should be cut clean just below a bud, all the buds rubbed off except three or four at the tip, insert in nursery rows, six inches apart, in a partially shaded part of the garden; the rows to be one foot from each other: it is important that the cuttings be made firm in the ground. This operation may be done any time (weather permitting) between October and February, and during the following summer weeds should be rigorously kept down, and during dry weather water would be thankfully accepted. In the autumn, after the leaves have fallen, transplant eighteen inches apart to give them more room, and when two years old they may be transferred to their permanent quarters, planting them three or four feet apart. Bees will work on currants when in flower when everything else is saturated with water, the drooping habit of the flowers protecting them from rain and heavy dews. White currants do not secrete much honey apparently, as I do not see much attention paid to them while in flower, but black currants, gooseberries, and the red-flowering currant, are eagerly sought after.

Raspberry is increased by suckers taken up in October or November, planting three canes together tied to a stake for support, each set of three or four canes to be four feet apart. As regards varieties it is just as well to have a good sort as an inferior variety. Fastolf and Carter's Fillbasket can be recommended as first-class bearers and producing fine fruit. The raspberry requires a good rich soil and a moderately shady position, and should never be planted in a dry sandy soil fully exposed to the sun, as in such an aspect and soil failure would be inevitable. There is a variety called the autumn-fruiting raspberry on account of its producing fruit naturally at that season, but I do not find that bees care much for the flowers. Langstroth considers the flavour of raspberry honey superior to that of white clover.

Snow-berry (*Symphoricarpus racemosus*), this shrub is chiefly used for covert planting, as it thrives well under large trees and spreads rapidly by throwing out suckers. When once established it will drive everything else before it; blocking up pathways, and constantly overstepping its allotted boundary unless well kept in check: any soil seems to suit it, and may easily be propagated either by cuttings or suckers. Cuttings may be inserted like black currants, but the buds need not be rubbed off, and suckers may be taken up and planted any time after the fall in positions that are usually allotted to nettles and other tall-growing weeds. The suckers will eventually master the nettles, and thus an unsightly and an unprofitable piece of ground may be turned to good account, by affording considerable bee-forage, and also an improved appearance of the nettle-clothed waste.

Willow (*Salix caprea*). This species of willow produces pollen in considerable abundance at this season of the year, as soon as the first flowers are open, crocuses, &c., are at once neglected for the more liberal supply afforded by these catkins (palms of our boyhood). It is a cheerful sight to watch the heavily laden bees entering their homes with the bright yellow pollen, the source of which we know to be the willow. It is a mistake to think that the willow can only be grown by the side of streams or on saturated ground. I have often met with trees grown from stakes that had been employed in fencing, and now luxuriating, and flowering freely, far removed from water, proving at once that wet, watery soil is not a necessity; all that is required is a shady position and a few stakes cut into lengths of about four or five feet and placed firmly in the ground. In two or three years they will begin to flower, keeping bees busily employed collecting pollen for some three or four weeks. The trees should be planted, if possible, about 50 to 150 yards from apiary, which will give an easy flying distance. The bee-keeper will thus have a valuable and convenient source of natural pollen at a time when long flights should be minimised as much as possible, seeing as this is the cause of large numbers of bees losing their lives.

Holly is an excellent tree to plant for shelter, as it makes a capital break to cold winds. It is also an important honey and pollen producing tree, the flowers are easily accessible for honey-collecting, the bees seemingly do not stay long to get a load. Plants may be raised from seed (holly berries) collected when ripe in winter, and sown in February or March in open ground. When the seedlings are a year old, transplant to induce a bushy habit and to form good short roots. Of course it will require some years to grow them into available trees for shelter or for bee-forage, therefore the best plan would be to purchase five or six-year-old plants. Holly plants should be planted in May or June, this being the very best time for their removal, and water should be given about twice a-week for a few weeks until they get hold of the soil. I may perhaps mention here that one thorough watering is worth any number of driblets.

Myrobella Plum or Cherry Plum (*Prunus myrobalana*). This shrub may be new to most bee-keepers, but it ought to be made known to every one; those who know the value of hawthorn in May and June would as equally appreciate this plum in March and April when known to them. It is employed like hawthorn as a hedging plant and grows rapidly even on the poorest soils, where the hawthorn does not succeed and soon forms (when cut only during winter) a hedge almost as solid as a wall, and when the hedge is of sufficient height, it will either turn man or cattle. For bee-forage the young trees should not be clipped, but allowed to grow at their own sweet will, when they will soon make fine ornamental trees. The first flowers open with the crocus and during March and April, when it is a sheet of bloom with wreaths two feet long of snow-white flowers, it is constantly besieged with bees. Propagated by budding and grafting, but cheaper to get through a nurseryman. —H. Dobbie. *Thickthorn, Norwich, March 25th.*

ASSOCIATIONS.

DEVON AND EXETER BEE-KEEPERS' ASSOCIATION.

Census of Hives.

In our issue of February 15th we gave an abstract of the annual report of the above Association. We have since received the printed report, and we are pleased to extract from it a fuller account of the bee census of the county undertaken by the Society than we were enabled at that time to give:—

'At the close of 1884, it was deemed advisable to take a census of the hives owned by the members of the Association in the county of Devon; inquiries were also made with regard to other matters, *e.g.*, the number of hives in the locality of any member, the amount of the honey harvest, the character of the hives in use, whether bar-frames or skeps; return post-cards were issued for this purpose by the hon. secs., and the replies, amounting to only 84 in number, gave the following particulars:—

'Twenty-eight members had no bees, and twenty-two of the forms were blank. The remaining fifty-six members own 385 stocks; 308 of these were in bar-frame hives, fifty-four in straw hives, and twenty-three in other hives. Thirty-three members used the bar-frame hive exclusively. The fifty-four straw hives are owned by twenty members, nineteen of whom have a few in conjunction with the "bar-frame hives." One only works exclusively with straw hives. The twenty-two hives under the heading of "other hives," consist of two skeps with bar-frames, three Stewartons, two box hives, one glass hive, and fourteen "other hives."

'Analysing the returns otherwise we find—

2	members	own over	20	stocks ..	50
3	,,	,,	15	,, ..	53
3	,,	,,	10	,, ..	37
4	,,	,,	10	,, ..	40
4	,,	,,	9	,, ..	36
3	,,	,,	8	,, ..	24
4	,,	,,	7	,, ..	28
5	,,	,,	6	,, ..	33
9	,,	,,	5	,, ..	45
4	,,	,,	4	,, ..	16
4	,,	,,	3	,, ..	12
3	,,	,,	2	,, ..	6
8	,,	,,	1	,, ..	8
				Total ..	385

'The amount of honey shown by these returns is disappointing and misleading; many, having no account of the quantity taken, made no return. The total shown is 8723 lbs., 6094 lbs. of which is comb honey, and 2629 lbs. run, or extracted honey. To bring this out more clearly, your council have selected ten out of those who have made a return of quantities. These ten show a total of 5221 lbs., whilst one return shows 809 lbs. from six hives; and taking four more we find an average per hive of 97 lbs. in one case, 74 lbs. in two others, and one of 62 lbs. The apiaries consisted respectively of ten, seven, six, and four hives on Lady-day last. The bees-wax had probably not been all extracted, as comparatively few members make any return. The total shown is 89½ lbs., this is only from twenty-three apiaries. Taking that part of our census relating to non-members, there are only twenty-three returns in which any information is given, and only eleven of these give any as to the honey harvest, quantities taken, &c. In the twenty-three parishes from which reports come we find there are 178 bee-keepers, owing 554 stocks, 222 in bar-frame hives, and 332 in skeps. While the total of the harvest from the eleven parishes from which we have any information is 3293 lbs. of honey, and this is from 279 stocks, which gives an average of somewhat less than 12 lbs. per hive; but this is probably far too high an average for skeps, as 122 out of the 279 are in "bar-frame hives:" and, sad to say, it must also be borne in mind that prior to November there were, for a certainty, many more stocks in skeps. As regards the bees-wax, it would appear from these returns that its importance and value are not sufficiently recognised, as only 28 lbs. of wax is shown by the owners of 554 stocks of bees. Looking at the census in another way, so as to obtain an average for the county, we find that eighty-four members (of whom twenty-eight are non-bee-keepers) obtain 8723 lbs. of honey; since striking an average in the same proportion 234 must obtain 24,299 lbs.; the returns as to non-members being meagre, your council by careful inquiry ascertained that for every bee-keeper who has joined the Association, there are two who are non-members, but as these cannot be considered advanced apiculturists it is estimated that they obtain half the quantity of honey; then 468 realize 24,299 lbs. This makes a grand total of 48,598 lbs., or 21 tons 13 cwt. 102 lbs., and allowing 10*d.* per lb. for comb and run honey, we find that the honey gathered in Devonshire is worth 2024*l.* 18*s.* 4*d.*'

Honey, Hive, and Bee Show at Plymouth.

A Honey, Hive, and Bee Show will be held on Tuesday, Wednesday, and Thursday, May, 26, 27, and 28, 1885, at Plymouth, at the same time as, and in connexion with, the Devon Agricultural Society's Show. Numerous prizes will be given. For schedules of prizes apply to Mr. W. N. Griffin or the Rev. J. G. Dangar, *Hon. Secs.*

SURREY ASSOCIATION.

Captain Campbell and Mr. R. J. Hinton having been elected to serve on the Committee of the British Bee-keepers' Association, Mr. F. H. Lemare and Mr. P. Waterer have been elected to act as Representatives to attend the Quarterly Meetings of the B. B. K. A.

CARMARTHENSHIRE BEE-KEEPERS' ASSOCIATION.

The Annual General Meeting of the members of the above Association was held at the Cawdor Arms Hotel, Llandilo, on Saturday afternoon, the 28th of March, when there were present: Lord Dynevor (in the chair), Sir J. H. W. Drummond, Bart., Lieutenant-General Sir James Hills-Johnes, K.C.B., V.C., Captain Riley (Llanon), Mr. Methuen (Brunant), Mr. J. L. Thomas (Caeglas), Mr. M. Daniell (Llanelly), Mr. W. Morris (Llanon), Mr. W. Thomas (Penybank), and Dr. W. H. Lloyd, and Mr. Thomas Jones, Mr. M. Jones, and Mr. L. O. Lewis, secretary, of Llandilo, &c. After the minutes of the previous meeting had been read and confirmed, the hon. secretary read the annual report and the balance sheet.

The report stated that the past season had been a most favourable one for bee-keepers. The total income, exclusive of donations to the bee-tent fund, was 52*l.* 4*s.* 11½*d.* including 38*l.* 0*s.* 6*d.* received in subscriptions, and a balance in hand from 1883 of 7*l.* 2*s.* 6½*d.*; the total expenditure 59*l.* 4*s.* 7*d.*, including an adverse balance of 15*l.* 12*s.* 4*d.* carried forward from 1883. There were outstanding liabilities amounting to 6*l.* 19*s.* 7½*d.*, and a balance of 6*l.* 1*s.* for bee-tent, to meet which there were in hand assets to the value of 23*l.* 17*s.* 9*d.* It would thus be seen that the Association was in a sound financial condition. During the spring the apiaries of 52 members were visited by the hon. secretary, and 150 stocks were examined, of which 90 were in bar-frame hives. A bee-tent had been purchased at a cost of 17*l.* 19*s.* 5*d.*, towards the payment for which 12*l.* 10*s.* had been received in special donations. The absence of any Welsh literature on bee-keeping had been greatly felt. To issue an edition of *Modern Bee-keeping* in Welsh would require an outlay of 50*l.* The committee of the parent society were prepared to spend that amount if they were guaranteed its return within twelve months.

The report and balance-sheet were adopted.

Mr. J. L. Thomas, Cae-glas, proposed the re-election of the President, the Earl of Cawdor, and of the Vice-Presidents—Lord Dynevor, Viscount Emlyn, M.P., the Right Hon. the Lord Bishop of St. David's, Sir J. H. Drummond, Bart., Lieut.-General Sir J. H. Johnes, Mr. W. R. H. Powell, M.P., Mrs. Bath (Sir John Jones Jenkins was excepted); and that the following be added —Mr. H. Peel, Mr. J. C. Richardson (Glanbrydan), and Mr. C. W. Mansel Lewis (Stradey). Dr. Lloyd seconded the motion. The secretary (Mr. L. O. Lewis) and the treasurer (Mr. J. Hughes, The Bank, Llandilo) were also re-elected; as were the following district secretaries —Mr. Walter Spurrell, Carmarthen; Mr. D. Lewis, Llanegwad; Rev. W. Jones, Llanon; Mr. J. Davies, St. Clears; Mr. L. Bowen, Talley and Llansawel; and Rev. J. Lloyd, Penboyr. The acting committee were

also re-elected, the following being added to their number:—Captain Butler, Mr. R. W. Lewis, Mr. Bradshaw, Mr. M. R. Jones, and W. Thomas (Penybank): and power was given to the committee, by an addition to Rule 4, to add to their number. The following were elected Hon. Life Members:—the Rev. H. R. Peel and Mr. Frank R. Cheshire.

Votes of thanks to the President brought the meeting to a close; after which the annual drawing for prizes took place.

WILTS BEE-KEEPERS' ASSOCIATION.

Not having sent you any 'Echoes' for some months, I now offer you the following Report of Bees, and the work done by our Association lately.

After an abundant honey harvest, super work, generally, was abandoned in July, owing to unsettled weather, and the large amount of brood prevented the storage of any surplus honey. Later on, however, fine weather and abundance of ivy-blossom, and *a goodly second crop of charlock*, enabled the bees to go into winter quarters under very favourable conditions. There were, it must be noted, an unusual number of queenless stocks to attend to. In every case where ordinary care has been taken the bees wintered well, began breeding early (in some cases before the end of January), and all now in a promising condition (April 8th), very few have required more than slow feeding. I found *new honey* in some, *February 20th*.

Our Association having been one of the fortunate ones, on February 11th (with the sanction of B. B. K. A.), resolved to expend their 5*l.* prize on the expert's travelling expenses. Circulars were sent out announcing the arrangements for visitations throughout the county, and the requests for a visit have been very numerous. The assistant expert not being able to get far from home, most of this work devolves upon me. At odd times I have visited most of the bee-keepers near at hand, and on March 18th started for a three days' tour, working ten miles of the Avon Valley—all new ground. I visited thirteen bee-keepers, owning 127 stocks (mostly well cared for), gave one lecture, attended by some fifty cottagers, at only one day's notice, and gained five new members. Meeting with so much hospitality and kind help in getting from place to place, the tour has only cost the Association 3*s.* 6*d.* One village shoemaker I found the proud owner of thirteen stocks of Ligurians and three of Blow's hives. I have already visited twenty-three apiaries, numbering just 200 stocks: of these nine were dead—one from dysentery, five from starvation, three from robbers; ninety-seven were in bar-frame hives, fourteen in plain wooden boxes, the rest in skeps. A great improvement is noticeable in the care *cottagers* are taking of their old skeps. All seem pleased with a visit from the expert, who is now pretty well known in the county, and nearly all glad to have their hives examined, which was *far from being the case* three years ago. The Association now has the assistance of nineteen 'district advisers,' five of whom hold B. B. K. A. certificates, and they are mostly doing good work among their neighbours. Already twenty-two new members have been enrolled. A good deal of excellent honey, mostly in sections, is still left on hand, though a very moderate price has been asked for it. To-morrow I start for a two days' tour; next week for five days, round Trowbridge, Westbury, and Warminster: on 22nd, to B. B. K. A. Quarterly Meeting and Salisbury; 27th, to Devizes and Marlborough; May 4th, Swindon, Malmesbury, and Chippenham. So that the kind donors of the 5*l.* prize will see that it is not being 'laid up in a napkin;' and it is to be hoped will be the means of gaining new members, not only for our own Association, but for our honoured parent the British Bee-keepers' Association, who has so liberally helped us and her numerous offspring.

Applications for information as to the examination for third-class certificates are already coming in.—Yours faithfully, W. E. Burkitt, *Hon. Sec. and Expert, April 8th*.

CAMBRIDGESHIRE BEE-KEEPERS' ASSOCIATION.

I always read with pleasure the accounts of the different county Associations in the *Bee Journal*, but always fail to see any account of our own county Association (the Cambridge). I began bee-keeping some five years ago, joined the county Association, and took in the *Bee Journal* so as to get all the information I could. To the latter I always look forward to and read with interest; to the former I paid my 5*s.*, and that receipt is all I have ever received except notices of meetings. Five years back the county Association was represented here at the Wisbech Working Men's Institute Flower Show, and I suppose they lost money. This year there is a grand chance for them to come, as we are having the county Agricultural Show here in July. I hear they do not intend being represented, as they have only one member in the district, and having lost nearly 13*l.* the last time they visited here. Now they forget what rapid strides bee-keeping has made since their last visit; then there were only a few bee-keepers, at this present time I know more than thirty bee-keepers who have the bar-frame hive system with about 300 stocks, besides cottagers with skeps. I have not reckoned ours as one of the best districts for bee-keeping. We have a large firm of seed-growers and a fruit-farm of nearly 300 acres; besides orchard farms of over 500 acres. Our town is quite surrounded by orchards, and the population of the town and district is over 30,000. Now, sir, the county Association says, 'We do not think of offering prizes at the forthcoming Agricultural Show, or taking any part in it directly, as the expenses would be great. If we had a few subscribers who would take an interest in the Association they might do more (they have only about two), and at their last show at Wisbech they lost 13*l.*' That is not to be wondered at, as they were very unfortunate in having a very inexperienced expert, and not having more subscribers is their own fault. Other Associations send out experienced or certificated experts to visit and instruct the members, we only get a piece of paper once a-year for our money to say there is a meeting at Cambridge. They never come near us at all. If they were to have a meeting here at times they might get members. We have more bee-keepers in and around this district than all the rest of the county.—J. Dann, *Wisbech, March 19*.

[We fear that the complaint of our correspondent regarding the inactivity of the Cambridge Association is too true. We feel sure the Committee of the B. B. K. A. would gladly assist in any proposal which might be made for the establishment of the Cambridgeshire Association upon a sounder basis. We do not know whether the above resolution was carried by the members in General Meeting or by the committee only.—Ed.]

NORTH-EAST OF IRELAND BEE-KEEPERS' ASSOCIATION.

The first annual general meeting of the above Society took place on Tuesday, 10th March, at 41 Waring Street, Belfast. Amongst those present were—Rev. H. W. Lett, M.A., Messrs. J. K. M'Causland, David Carmichael, J.P., W. E. Best, E. Smith, William Shaw, C. W. Henderson, William Ditty, S. Cunningham (Treasurer), H. M'Clecry (Hon. Sec.), etc.

Owing to the absence of the President (the Right Hon. Lord Ashley), the Vice-President (Mr. J. K. M'Causland) took the chair, and called on Mr. Lett to read the report of the late Co. Armagh B.K.A.

The Chairman then called on Mr. M'Cleery to read the report of the North-East of Ireland Bee-keepers' Association. This report shows that, although the Society has been only about seven months in existence, there were over ninety members, and that, financially speaking, it was in a fairly good condition. In speaking of the show which was held in Belfast on September 29, 1884, it says that there was a show of honey inferior to none in the United Kingdom. The Committee of the Society tendered their best thanks to Mr. Cunningham, Messrs. M'Kenzie and Sons, A. Cross Bryce and Co., and also to the press for the excellent reports of the show, meetings, etc. The report winds up by showing that the members of the Society own seventy-nine straw skeps and 266 bar-frame hives, and that during the year 1884 the quantity of honey taken amounted to nearly 6000 lbs.

Mr. M'Causland moved the adoption of the report, which was seconded by Mr. Carmichael and passed unanimously.

The other business of the Society was then gone on with, and the proceedings terminated with a cordial vote of thanks to the Chairman.

NOTTINGHAMSHIRE BEE-KEEPERS' ASSOCIATION.

A lecture in connexion with this Association was delivered at the Board Schoolroom, Willoughby-on-the-Wolds, on Tuesday, April 7th, by Mr. Frank Fisher (of Farnsfield), on 'Bee-keeping: How to make it Pay.' In the course of a very interesting lecture, Mr. Fisher explained the many advantages of the modern bar-frame hive over the old straw skeps, and showed how bees may be kept to produce a large profit. Major Robertson, of Widnerpool Hall, occupied the chair, and kindly offered a prize in connexion with the coming show at Willoughby. There was a large and appreciative audience. A vote of thanks to the lecturer and the chairman brought the proceedings to a close.

A lecture was delivered on Tuesday evening, April 7th, at the Coffee Tavern, Bucknall Torkard, by Mr. W. Bell, of Annesley, on 'Bees and Bee-keeping: How to Make it Pay.' The Rev. J. E. Philips, vicar of Bucknall, occupied the chair. The lecturer thoroughly explained the working of a bar-frame hive, and showed its advantages over the old straw skep. In the course of his remarks Mr. Bell enumerated the many benefits to be derived from joining the Association, which already numbered over seventy members in various parts of the county. There was a large audience, who were deeply interested, especially with the practical illustrations introduced by the lecturer. A vote of thanks to the lecturer and the chairman brought the proceedings to a close.

Foreign.

FRANCE.

M. Hamet, Professor of Apiculture at the Luxembourg, announces that the opening of the free public lecture on Apiculture at the Garden of the Luxembourg, Paris, commences this year on Saturday, 11th April, at 9 o'clock, and will be continued every Tuesday and Saturday at the same hour. Perhaps some of our readers may have an opportunity of looking in.

The Society of the Aube opens its meetings, in connexion with the Horticultural Exhibition, which will take place at Nogent-sur-Seine on 30th and 31st May. Medals in enamel, silver, and bronze, will be distributed to the members, for implements and agricultural products which they may present at the exhibition. Persons desiring to take part in this meeting are invited to communicate, before the 15th May, with either M. Vignole, President at Beaulieu, près Nogent, or M. Beuve, Secretary General adjoint, at Creney, près Troyes. Exhibits must be delivered at Nogent and installed within the exhibition enclosure by 8 p.m. on Thursday, 28th May.

The Society of Horticulture, Botany, and Apiculture at Beauvais, will hold an Exhibition on the Esplanade of the Hôtel de Ville at Beauvais from the 13th to the 22nd of June. There will be three classes in Apiculture (products, implements, and instruction), open to all comers. Apply to M. Decaye, President, Rue des Halles, 68, before 7th June. Exhibits must be sent in, carriage paid, before noon on 12th June. Apply for programme.

Brood Comb.—Strengthen your stocks by adding brood-comb whenever they are likely to languish, particularly after throwing off a swarm, when the young queen, not yet fertilised, is liable to many mischances, any of which may be prejudicial to the stock. Nothing stimulates young stocks so much as the development of young brood, and even where no accident occurs to the young queen many days are necessarily lost before egg-laying commences, during which time the bees are apt to become torpid: whereas by giving them a frame of brood-comb they are at once stimulated to useful activity, and can if the queen be injured or lost in her marriage-flight at once proceed to raise up a new one. To the swarm also a frame of brood-comb is most welcome. It tends to settle them in the hive, and gives them an additional interest in working.

Speculative Feeding.—In spring the bees are often balked and stopped in their labours by the changeable and frequently cold temperature of our northern climate. It is to guard against these *contretemps* that we have recourse to *speculative feeding*, which has for its aim to come to the aid of the bees, and to put them into a condition to more rapidly repeople the hive than if they were left to the hazards of the season. In certain regions, when the harvest is either forward or late, we can thus regulate, even to a certainty, the moment when the hives being at their strongest, can send out their workers 'in their thousands' to collect the bountiful gifts of Nature. But even in the more favoured countries, where the honey harvest is yielded more or less all through the year, every bee-keeper knows that only the strongest stocks give full profit. Well, *speculative feeding* gives strong population to all hives which, in other respects, are in a normal condition.

The bee-keepers of the heather region of Luneburg, in Hanover, who are masters of the craft, give us a striking example of what may be done by *speculative feeding* in circumstances relatively unfavourable. Feeding from the month of April up to July they triple the number of their hives to work with their teeming populations on the few honey-bearing plants of their country. They thus attain to such results that many families live almost exclusively by the products of apiculture. They feed with preserved honey which is often ten years old. This honey has an uninviting appearance, but besides its saccharine matter it contains great quantity of pollen, which accounts for the astonishing effect produced by it.—*Bulletin de la Société d'Apiculture de la Somme*, No. 45.

ITALY.

The *Apicoltore* devotes a considerable portion of its pages in complimenting the British bee-keepers upon the recent establishment of Honey, Bee, and Fruit Companies, and regrets, at the same time, that the steps which the Italian Association took some years ago in the same direction should not have met, at the hands of Italian bee-keepers, the support which they so much deserved. The same contemporary comments, moreover, in most favourable terms on the beneficial results which will be sure to follow the introduction of honey into Messrs. Huntley and Palmer's biscuit-factory, as the manufacture of Honey Drops upon so large a scale must

inevitably absorb a considerable quantity of home-gathered honey.

At a meeting of the Italian Bee Association held at Milan on the 29th of last month, Signor Giacomo Guazzoni was unanimously voted to be Hon. Director of the Apicultural Museum and Library of the Association.

AMERICA.

Bee Convention at Syracuse, New York State.

Notes by Arthur Todd, *of Philadelphia, for the British Bee Journal.*

January 21, 22, and 23. Saw, in the Town Hall of Syracuse, N.Y., a gathering of the most earnest and successful bee-men of New York State, all members of the North-Eastern Bee-keepers' Association, founded by the late Moses Quinby in 1868. Many of those present had brought with them objects of interest, so that quite a small museum of bee novelties adorned the hall. The automatic reversing honey extractor made by Stanley Bros. attracted a great deal of attention. There was a drone-trap large enough to hold a small swarm of bees. Mr. Vanderwort was there with one of his latest improved comb-foundation mills. Mr. King showed one of his automatic autumn quick feeders, hive, sections, &c. There were samples of honey from away beyond the Mississippi, from Florida, and from Cuba. The writer had brought along a small apparatus forming a glass tank, which contained a soap solution, by blowing air into which bubbles were produced, and so long as the air-pressure employed was steady and equal, it was seen that the bubbles were pressed together, forming hexagonal figures of equal size exactly like honey-comb. The object of this exhibit was to show that the building of hexagonal figures was not due to instinct in the bees, but the simple following out of a law in nature. For the further understanding of this interesting question I beg to refer your readers to an article entitled 'Origin of the Cells of the Hive Bee' which appeared in the *Journal of Science* for 1883, and which, if not already reprinted in your columns, deserves a place there in my opinion.

The writer had also brought along with him the Frank Cheshire charts, which were quite new to most, if not all those present; they were examined with great interest, and their special utility as a part of the furniture of all bee societies was urged. Thanks to the kindness of Frank Cheshire, I was enabled to exhibit under a good microscope actual *Bacilli alvei* and 'spermatozoa of the hive bee,' mounted by himself and sent me specially for this convention. Great was the desire to see those '*little bits of stick, you know*,' as all said the horrid Bacilli looked like. It took time for the hundreds of bee-men there to file up and each have a peep at our common enemy; and during this period I made many new acquaintances, and renewed old ones, amongst those such as Captain Hetherington, C. C. Van Deusen, L. C. Root, G. M. Doolittle, &c., &c., whose names are famous in the annals of bee-keeping in this country. I had long had the desire to attend this Convention, and knowing the great interest taken in this country in the investigations undertaken by Frank Cheshire, Esq., I took the liberty early to write him, asking if he could mail me a sample slide of *Bacillus alvei* to exhibit at this meeting. In response I received not only the slides spoken of, but a most kind letter. This letter I had the pleasure of reading aloud to the Convention, and his expressions of fraternal greeting to the bee-keepers of this great new country were most cordially and heartily received. With one voice the Convention voted that the name of Frank Cheshire do hereafter appear upon its roll as an honorary member, and I was deputed to convey its wishes to him.

The question 'Is Stimulative Feeding profitable and practicable?' was well ventilated. The general feeling seemed to be that if it is known that the bees have stores enough to carry them well on into the spring it is best to leave 'well' alone. One very successful bee-man told how he stimulated early by open air feeding and had no losses to signify by the bees chilling with cold. His plan is to have a large flat pan with a floating tray in it, and this is kept well filled with thin syrup at a temperature of 80° Fahr. The effect of the artificial heat on the bees even on cold windy days is to give them extra powers of endurance and carry all safely back to their hives. If a few of his neighbouring bees do get a share he does not mind, considering the advantages gained by his own bees. Cane-sugar syrup only is used, as any mixture with honey would lead to robbing.

Mr. F. C. Benedict, the Secretary, read a paper entitled 'Best Management of the Apiary for Comb Honey.' The gist of the paper is about as follows:—'I confine what remarks I have to offer to a section in a latitude where clover and basswood are the principal sources of supply. We start in the early spring before the first natural pollen is gathered, and when we are letting our bees work upon rye-flour. When or before natural pollen appears see that each colony has a good queen, and plenty of honey, and covered with some material that will keep in the heat and moisture. Look them over again in ten days, and you will find colonies that cannot cover eight frames, so contract by using the division-board till they have no more frames than they can cover, and have plenty of honey. In another ten days you will find many young bees, and if you find that the queen is using all the room add one frame to the brood-nest. Now begin to stimulate brood-rearing by feeding, either feed in the hive or at the entrance, one part sugar, to three parts water, and about four table-spoonfuls per hive daily. There are now about fifty days to white clover bloom, so push them as fast as possible, for there is no danger in getting the colonies too populous at this time. Examine each colony weekly. Good results may be obtained with nearly all of the moveable frame-hives. In the honey season I prefer a top storey hive, for a strong colony can utilise more than eight frames, and the hive that can be enlarged is desirable. Coming to the honey season we have the sections filled with a light foundation not less than ten square feet to the pound placed on racks with separators clamped between. At swarming time, with all strong swarms that issue up to within one week of basswood bloom, remove the old hive to a new stand, and place the new hive upon the old stand.'

In view of the present large production of honey in the United States, the questions 'How to market our product?' and 'How to increase the demand for extracted honey?' met with good attention. There were men who believe in the commission merchant having a trace of honesty left in him, and men who seem to think all commission men are thieves. One gentleman thought it would be a good thing if the amount of money spent on express and freight charges were devoted to getting up neat packages for the home trade. Some consider the markets spoiled by the farmer who keeps bees; but is not a specialist rushing his small crop on the market at any price,—'only sell,' and thus reducing values needlessly? The fact of Honey Companies being started in England was mentioned, but met with no favour as applied to this country.

Other papers were read and questions discussed; but the most important one to my mind, and vitally affecting the interests of honey producers in the 'old country,' was the question, 'Shall Cuban honey be admitted into the United States duty free, or not?' Decidedly not! was the general opinion; and in view of the fact that a treaty to admit Cuban honey free, whereas now it pays one penny per pound duty, is before the United States Senate, a series of resolutions were drafted and a committee appointed to issue a circular letter to all bee-keepers urging united and immediate action.

Now I have mentioned that among the samples of honey exhibited was one of Cuban honey. This sample was not the old style of Cuban honey, which was a vile mixture of honey, pollen, brood, dead bees' wax, and various other nastinesses; *but* 'honey,' clear, brilliant, inviting to the eye, and of first-rate flavour, gathered by modern methods with bees in frame-hives taken out with an extractor. Cuba is waking up, and knows that she can supply the world with honey of prime quality. The cane-sugar industry in Cuba is almost dead, and nearly all of the planters are financially bankrupt: as the drowning man catches at the straw so will they increase their honey-saving labourers, and soon England and Europe will be having pure machine-extracted honey delivered in Liverpool, perhaps for 2*d.* to 3*d.* per lb. As there is no penny a pound duty to help you, now is the time to look the matter in the face, and see if in quality and price England's bee-men cannot hold their own against any country.

The Convention at an end I accompanied the President, L. C. Root, Esq., to his home in the famous Mohawk Valley, and there, with Mr. Locke, the editor of the *American Apiculturalist*, and Mr. C. C. Van Deusen, a large honey producer (whose name is well known in connexion with flat-bottom comb-foundation) we held a private convention of our own. Mr. Root is a son-in-law of the famous Moses Quinby, inventor of the bee-smoker, and I believe the first to market comb honey in section-boxes; the man who in 1858 wrote, 'There is not the least doubt in my mind that whoever realises the greatest profit from his bees will have to retain the moveable comb in some form.' I had the pleasure to meet Mrs. Quinsby, the widow of the famous man. I visited the bee-cellars of Mr. Root and saw numbers of colonies, put in there November 19th, 1884, all being daily watched, temperature noted, weights taken every month, &c. Bidding farewell to my kind host and hostess and family, I was soon whirling off home, my mind laden with fresh thoughts to guide me in another year's bee work.

NORTHERN AFRICA.

Mr. Frank Benton informs us that there has been established in Tunis, the site of the ancient Carthage, an apiary of forty hives, to be conducted on modern methods. The name chosen is 'The Kassartyr Apiary,' the estate to which it adds a pleasing feature being known by the name 'Kassartyr.' At present the moveable-comb hives are not all in place and the stocks in suitable condition to take full advantage of the first yield of honey—that from wild rosemary blossoms, but some surplus has been obtained and many combs have been constructed, so that when the jujube blossoms open next month an excellent harvest may be safely counted upon. The rosemary yields wonderfully, and as thousands of acres are covered with its pale blue blossoms during January, February, and March, it will be a great dependence. A medium stock transferred the last day of February has yielded up to date over forty pounds of extracted honey besides building out several frames of foundation. The rosemary is the plant from which the famous Narbonne honey of France is gathered, and the Kassartyr honey is most excellent in quality. Some of it is quite transparent, very thick and possesses a pleasing aromatic taste. Altogether the proprietors of 'The Kassartyr Apiary' have every reason to feel encouraged in the work they have undertaken, and it has already begun to have its influence, as two other apiaries on the same plan are soon to be established in the province, and several enterprising parties are talking of introducing the culture of bees on their estate. A few words about the bees of Tunis. They are dark—even darker than our common black bees, but, strange to say, possess nearly the qualities of Syrian bees, and show, except in colour, very little resemblance to the black or German bees. Like Cyprians and Syrians they are somewhat smaller-bodied than are the common bees, adhere very well to the combs when handled, but can be shaken off readily. They are also active, energetic workers. But, unlike Cyprians and Syrians, they are liable at times to fly at one and sting him when he approaches the apiary and yet does not molest the hives. They bear smoke rather better than other Oriental races; queens show a tinge of bronze colour and are very prolific. On the whole, Tunisian bees are not to be despised even if they are true Africans in colour. I've been wondering how this race of bees got here, and have only been able to offer the following explanation:—Early Greek colonists must have brought Hymettus bees with them. History might lead us to this conclusion and it is indicated by their colour, qualities, &c., and particularly their disposition to submit to smoke, as well as by the fact that other Mediterranean countries from which bees might have been brought here at an early date all have as their general types yellow races of bees.—*The Bees*, No. 2.

SOUTH AFRICA.

In the pamphlets I have forwarded, a brief description is given of the two distinct classes, or rather varieties, of bees in Cape Colony—the black and the yellow. Specimens of the drones of both which I shall send you, if possible, next post.

The bees of South Africa are admirable workers, and eminently reproductive; and it has occurred to me since writing you my last that many British bee-keepers might like to avail themselves of the opportunity of introducing and breeding one or both of the African varieties. If such desire should be expressed by any of your readers, and they will kindly favour me with particulars as to how they would like fertilised queens to be forwarded, and where, although there is no 'parcel post' from here to England, I might, perhaps, be able to arrange to send them by the steamer which leaves here once a-week, and I have no doubt they would arrive safely. I have myself been long desirous of obtaining, with a view of testing their comparative excellence by the side of South African bees, either the Ligurian, Cyprian, or Carniolan bees, but especially the first; and I should be glad to know by what means I could procure a fertile queen of either of these varieties, or whether any of your correspondents or subscribers would be disposed to effect exchange.—J. W. Stroud, M.D., *Port Elizabeth, Cape Colony, S. Africa, March 4th.*

Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

HONEY FAIRS.

The very numerous communications I continue to receive from various quarters, soliciting my views as to the best means of providing a *profitable* market for the sale of members' honey when harvested, and so much having been written in the *Journal* and in the press generally of late upon the question of 'How to dispose of honey *profitably?*' will, I hope, be accepted as an excuse for my troubling you with this letter; and as my object in penning it is to advise to the best of my humble ability on this very important question—the all-important one, I may say, from a bee-keeper's point of view—I venture to think my remarks will be received by brother bee-keepers as sincere.

Allow me, then, at once to state, that if bee-keeping is to be made a lucrative engagement (and we know it

can be), we one and all must use our utmost endeavours to bring the producer into direct contact with the consumer; and your readers will not be much surprised if I ask, Is there any other better or more effectual means of doing so than by establishing honey fairs throughout the kingdom? Nor will they, I think, be disposed to question my answer, when I unhesitatingly say there is not; and so thoroughly convinced am I of this fact, based on past results of our annual honey fair held at Grantham (a small town), that it is my intention, if spared, to arrange for the Lincolnshire Association to hold honey fairs at all the market towns in the county on their respective market days during autumn, thus affording, as I hope, the greatest possible facility to members to market their honey profitably, and the public an opportunity of securing home produce at their own doors, as also giving to the world *gratis* some idea of the extent bee-keeping has assumed at the present day, and thus interesting them in the work, and so helping on our cause.

I notice with surprise, and not without a feeling of regret, that, presumably to assist members in the disposal of their produce profitably, several members of the Committee of the British B. K. A. (including our much-esteemed late Hon. Sec., and our present valued Chairman of Committee) have given their patronage and support to the establishing of a Honey Company. Why, may I inquire, do we need such a company? It may, or it may not, be a good trade speculation, and if it had been taken up by outsiders I should not have troubled to remark upon it; but when I read that the most prominent members of the Committee of the B. B. K. A. are promoting this Honey Company, the question forces itself upon me, Is this the only mode which the Association see of aiding their members in the disposal of their produce profitably after so much deliberation in their council-room? and have Associations so failed in their endeavours to find a more satisfactory way to escape the fulfilment of their promises to members, as set forth in their rules generally on this point, as to be compelled to lull themselves into the idea that Honey Companies will meet the case? I truly hope not; or depend upon it, when members find they can get no more than *6d.* or *7d.* per pound for their honey (which, I have very good grounds for stating, would be the most they might expect from a company), there will sooner or later be a great diminution in our ranks.

We, as promoters of Bee-keepers' Associations, must keep in view the fact that we induce people (our poor especially) to engage in bee-keeping as a means of adding to their maybe scanty income. We hold out promises of assistance whereby it may be made profitable to them. We receive them as members, and take their subscription money; they embark in the charming work; spend a lot of (in many cases, perhaps) hard-earned cash, and by chance get a nice lot of honey. Here we leave them with promises unfulfilled as regards providing, or even attempting to provide, a market at which they might profitably dispose of their surplus produce.

So far as my observation serves me in taking average seasons in our varied clime, the British bee-keeper ought to realise the very lowest average of *10d.* per pound for extracted honey, and *1s. 3d.* per pound for super comb honey; and I should hesitate before trying to induce any one to engage in bee-keeping for profit if I saw no prospects of his obtaining at least such an average.

I read and hear many reports respecting the price at which honey (English honey) can be produced, but never in my life did I hear that it could be raised at *3d.* per pound, nor do I think any one else ever did, until they read Mr. Seager's statement, which I do not for a moment think any bee-keeper will credit. I have debited Mr. Seager with the loss of two nights' rest caused by reading his remarks recorded in December *Journal*, that honey could be produced at *3d.* per pound; but as it probably may have been (as Opposition M.P.'s say) an after-dinner statement, I gladly leave the credit open.

Now I have been for years trying to knock into folks the good of bee-keeping and the profitable results therefrom. It is true, at the same time, I have been in an asylum for lunatics more than once; and if any of my bee friends should chance to heed Mr. Seager's statement, they might be inclined to think R. R. G. had better be sent back there, and retained during pleasure, and so kept from doing further evil. I hope Mr. Seager is not so deeply interested in the British Honey Company as to be blind to the fact that the cottage bee-keeper, whom he is striving to encourage and benefit, would be a rarity when he found he could not get more than three times the price for his honey that Mr. Seager quotes as remunerative.

I hear wailing notes from many quarters already, and if the price of honey is to be thus run down I should certainly not be surprised if half the bee-keepers in England were to throw up the work in disgust, and accuse promoters of bee-keeping of having deluded them. I fancy I hear the lamentations of a poor cottager, who may have been led to start in bee-keeping as a profitable pastime after his day's work, and who has spent some of his hard earnings in buying hives, bees, &c., with a view, as pictured to him, that the profits from his bees would enable him to meet his landlord promptly, and buy boots for his children as well. Let us consider the case of a man in such a position. He purchases six stocks of bees with hives, &c., at an outlay of *4l.*, and in a favourable season these six stocks yield him an average of over 20 lbs. of honey each, 120 lbs. in all, which at *3d.* per pound would be *30s.*; add *20s.* for swarms, which he might chance get. This gives a total of *50s.* less interest on capital invested, which at the lowest rate ought to be 10 per cent in a bee business is *8s.* Here, then, we have nett *42s.* and labour; the domicile of the poor cottager would have to be Irish rinted, and the youngsters Irish shod, if the profits from his bees had to be depended upon.

Referring again to the price of English honey, remarks have been frequently made by correspondents to this effect, that to successfully compete with the foreigner, and drive out of our market his poisonous stuff, we must be content with lower prices for our pure English honey. I must say I do not see the force of such argument. If folks prefer small beer at *6d.* per gallon, let them have it; but is that a reason why good ale should be offered at the same price? Would producers of good Stilton be so insane as to offer their rich product at the price of Dutch? or any sane Aylesbury dairyman his fresh butter at the price of American tub? I venture to think not. I may be wrong in my conclusions; nevertheless, I would caution one and all who should at this bee-keeping crisis (for it is a crisis) be thinking of embarking in bee-keeping as a profitable business not to attempt it with a prospect no more promising than that which appears looming in the minds of many.—R. R. Godfrey, *Grantham.*"

[We publish this letter from Mr. Godfrey because we consider that the opinions of such a well-known bee-keeper should be placed fairly before our readers, though we venture to think that his arguments are not sound.

The Honey Company has no intention of interfering with such disposing of honey as Mr. Godfrey suggests might be

* Mr. Raynor, in a private letter to me and which he has kindly given me the privilege of quoting, remarks, 'Your annual honey fair appears to have been a decided success again; I wish that all our principal Associations would follow your example in this respect, the difficulty in a plentiful season like the past appears to be how to dispose of the honey at *remunerative* prices.'

very well effected by honey fairs, and we wish every county had such an enthusiastic and practical bee-keeper as our esteemed correspondent. If our readers will consider carefully the arguments that have appeared on this subject in recent numbers of the *Journal*, they will be able to judge for themselves the great advantages that will result from having a reliable wholesale market for honey, independent of counties or their local markets.

Supposing, for instance, that Lincolnshire has more honey than its inhabitants can consume, and we know that this is the case with Lincolnshire at the present time, while London is deficient, how can we better maintain the balance of supply and demand than by the Honey Company buying the surplus of Lincolnshire, and so being able to supply the longings of the Londoner for honey? But it may be retorted, that in such a case the former or the latter would have to pay the profits of the middle-man, that is, in this case, the Honey Company. In an ideal state of existence it might be possible to do away with the merchants altogether, but we are afraid such a millennium is only in the dim future, notwithstanding the co-operative stores. The wholesale and retail trades are quite distinct branches of business, and as such require different modes of working. It would not repay those who buy and sell by the hundredweight or ton to buy and sell instead by the ounce or pound; and in these days of close competition the profits of the middle-man are cut down to a very low figure. The bee-keeping father of the shoeless children would doubtless prefer retail prices for his honey instead of selling wholesale to the Company, but it would often happen that the supply of honey at a local market was in excess of the demand, and if this happened again and again, there would be a heavy bill for carriage, &c. Even if it were not so, who is to sell the honey for this shoe-wanting father? and is the salesman to be found to do this for nothing?

Again, we join issue with Mr. Godfrey on the price of honey. Unless we have a very short supply, such prices as he names—10*d*. per pound for run honey and 1*s*. 3*d*. per pound for comb—are prices of the past. We have had some hundredweights of the former offered to us for 6½*d*. per pound, and of the latter at 8½*d*., and this before the advent of the Honey Company. It is quite an open question what is the lowest price at which honey can be profitably produced in Great Britain. We avoid Mr. Godfrey on the one hand, as well as Mr. Seager on the other.

In these days of competition we do not think the return of 50*s*. on an outlay of 4*l*. is a bad investment, and in any good neighbourhood for bees the return ought to be considerably more than 20 lbs. per hive; and if we put it at the Godfrey-Seager mean, the profit would be more than cent per cent. In conclusion, our advice is not to despair of British bee-keeping; get the highest price you can for small quantities of honey which can be sold in your immediate neighbourhood; and if you have any surplus get every farthing you can for it from the Directors of the Honey Company.—Ed.]

PRICE OF HONEY.

Having read all that has appeared in the *Journal* on the subject of promoting bee-keeping in this country by opening markets for the sale of honey, it appears to me that the new British Honey Company is a mistake, that it will not have the desired effect, and that no one who has yet attempted to enlighten us has succeeded in showing how the desired object is to be gained. Of course I take a bee-keeper's view entirely, and have nothing whatever to do with soundness of the commercial principles of the Company, and have no doubt the financial results will be satisfactory enough to the shareholders, nor do I doubt the Company's primary object, viz., the ready sale of British honey; but what I want to know is this, Will the promotion of a ready sale secure to the producer a remunerative price, or will the ready sale be promoted at such a price as to render bee-keeping in this country about as profitable as growing corn?

If we have a powerful Company established on sound commercial principles, using its energy to produce a satisfactory dividend, and for this purpose penetrating all the honey-producing districts in the world, will the British bee-keeper, with his fickle climate, be able to hold his own against the foreigner?

We hear a good deal from time to time about Eldorados and barrels of honey, and I do not know whether all foreign honey is inferior in quality to our own, but I do not suppose the British Honey Company will give the 'Britisher' a higher price for his native honey on sound commercial principles.

Then the next question is, Supposing the British public is able to buy genuine and pure honey, nicely put up and guaranteed by the British Honey Company, at 6*d*. per lb., will this be promoting bee-keeping in this country? And lastly (for it will come to this), will the British bee-keeper be able to compete with the British Honey Company in supplying honey of the best quality at the lowest price?

I have always been in favour of establishing a dépôt, and a fund for buying the produce of British bee-keepers, and retailing on co-operative principles: but with the prospect of foreign supplies and large profits on heavy capital account, I say, '*Save me from my friends.*'

If the fact of there being a large Honey Company established on such sound commercial principles, is in itself sufficient to promote the interest of British bee-keepers (as the Hon. Sec. Herts B. K. A. seems to think) on account of the ready sale, we as bee-keepers can only hope that other companies will spring up on sound commercial principles to create a little wholesome competition for our honey, at prices which will encourage us to persuade others to embark in bee-keeping for the sake of profit combined with pleasure.—Thos. F. Ward, *Highgate*.

P.S.—If your prophecy comes near the truth, there may be a few favoured places where bee-keeping will be *possible*, but to talk about *promoting* bee-keeping with honey on a par with household jam, is indeed startling to one British bee-keeper.

NEPETOS PURPUREA.

I venture to think I can introduce the readers of the *B. B. J.* to a very valuable, and, I believe, rare plant, for our busy little friends. It is called the *Nepetos purpurea*, is a perennial, perfectly hardy, blooms from May till November, and for those six months of the year is literally covered with bees. Its long spikes of flowers lie almost on the ground, the plant looking from a distance like a blue cushion; so it is very ornamental, besides affording honey as long as a flower remains. I keep but a few stocks of bees, and find I can this spring dispose of a small number of cuttings of my favourite plant on the receipt of 1*s*. 6*d*. per dozen. The cuttings strike readily in the open ground, and should soon be put in. I may add that the honey here is considered delicious, and I think the little *Nepetos* has a large share in giving it its rich flavour. The proceeds of the honey and cuttings are given for the benefit of the 'Bird's Nest' near Dublin.—C. S. Cooper. (Address, Miss Cooper, Highfield, Byfleet, Weybridge.)

SWARMING.

I have stated elsewhere that all stocks intended for the production of honey should be at full strength by May 1, or some ten days before the first flow of honey is expected in any locality. And now, having all in good working order, we must so manage that the bees' natural desire to increase may be turned to profitable account, rather than permit that instinct to be the cause of loss, as with many bee-keepers has been the case.

In the first place, it should be understood that the very best results in comb-honey are obtained (in most districts) with those colonies that are not permitted to increase, or are not divided by the bee-keeper. Very

frequently it has been stated, that as soon as colonies are strong enough they may be divided rather than let them swarm; but even if one is willing to forego a portion of the season's honey for the sake of increase, this is a very poor way to obtain it, as the best part of the season is gone before such lots get to work in earnest, and then in most localities with our short season, the two will not gather nearly as much as the one strong colony which, swarming in due time, is returned on to foundation in its original situation, and the supers at once replaced, when there is no delay whatever. The brood-combs with the remaining young bees being removed to a fresh place, can then be broken up into at least two colonies for increase (as shown under 'Queen-raising') each of which will soon be as strong as either of those two made by division before the swarming point was reached.

Where it is desired to prevent permanent increase, it is by no means necessary or desirable to put a stop to swarming. Other than judicious shading, and giving all needed space, there is no economy whatever in so-called preventive measures. No practical bee-keeper can afford to cut out queen-cells from populous colonies, with every probability of missing one or more, and all his time gone for nothing, without considering the fact that the bees will again and again build other cells if once determined to swarm. Neither is there anything gained by removing a frame or two of brood occasionally and inserting foundation in their place. The new combs are built out at the expense of so much work in the sections, whether filled with stores, as will be the case during a good flow of honey, or crowded with brood when but a little is being brought in. On the other hand, such new combs, when only one or two are given at a time, are one of the greatest inducements to the formation of queen-cells. Do not, therefore, try any such piecemeal operations, and if the bees are determined upon swarming, let them have their wish, under proper management, and depend upon it, better and more work will be the result.

Though the statement may seem contradictory, it is possible to permit, or make bees swarm, and yet have no permanent increase. Referring to my communications last spring, Vol. XII., pp. 12 and 168, it will be seen how this is done, when it is found they are preparing to swarm. One plan being to place the whole of the bees on to foundation on the original stand, and then to distribute the combs of brood (after removing queen-cells) among others being worked for extracted honey, or giving them to queen-raising nuclei, another way was to remove the old combs and young bees adhering to another hive standing near the newly-made swarm. The young bees (those removed with the brood-combs) are then permitted to take care of a young queen, and when she is mated and laying nicely, the two are united, first destroying the old queen.

Until last season, I had found no better plan than that of returning swarms on all foundation, and the supers at once given back. With half the brood-combs returned and the remainder comb or foundation, I had found the supers neglected for a considerable time; and when all empty combs were given it was still worse. The past season, however, has shown me that 'all foundation' was not quite the thing, as I had much better results by returning just two combs of brood, and the rest foundation. I have now adopted this plan, because with no combs drawn out below, a large number of the workers would go above, and deposit pollen in the sections; and, moreover, before more young bees could hatch out, there would be a considerable falling off in the strength of the swarm, but this loss is fully made up by the two brood-combs, one of which should have bees hatching out, and the other containing larvæ in various stages.

When working for extracted honey, we have little or no swarming, as more room can always be given than the bees really require, but while producing comb honey so much space cannot be allowed, therefore more care and attention is required; and so far no plan has been discovered which does away with the inclination to swarm; nevertheless, I have herein endeavoured to show that this desire need cause the bee-keeper no anxiety, because under good management the colonising instinct may be so controlled as to be the means of a still larger quantity of honey being stored. For instance, a new swarm will always store honey more rapidly for the time being, than a stock, which, though stronger, has not swarmed. This happens not simply because the swarm is aware it has a new home to establish, but also because for some days they have but little brood to provide for.—S. Simmins.

PROPOLIS.—'THE FUTURE OF BEE-KEEPING.'

Mr. Cheshire's surpassingly interesting papers have so whetted one's appetite for scientific information that I am induced to ask if Mr. Hehner has anything to tell us on the subject of propolis, of which he asked for specimens in the winter.

The future price of honey is all important, for if its production will not pay, many will certainly hesitate about plucking the rose from among the thorns. But I am surprised that you think many persons will be able to produce it, with a 'living' profit, at less than 7*d.* a lb. Of course you have information and knowledge which only a few possess, but I do not fancy such producers will be found in remote parts, and that any great quantity will be sent up from the western counties, for example. Difficulties of locomotion will be taken into account, and I expect that a better price than this will be obtained from private friends and neighbours. I find that year after year many persons await their supplies from the same cottagers. It is a very few of these who have *much* time to devote to their bees, and fewer still into whose brains you can beat the advantages of better methods. You have been incautiously rather slighting to some who endeavour to do this. I refer to a remark against which I venture to ask you to allow me to protest. It will be found near the bottom of the second column of page 107, where you speak of '*country clergy* and others, who have little else to do.' You have only, for want of a second thought, I am sure, repeated a not uncommon remark, which was begotten of ignorance, and is uttered sometimes in malice, sometimes with a mixture of scorn and pity, sometimes as a mild, but cutting, joke. I think I could introduce you to some who are always fatiguedly far from that most unenviable condition ('little to do,' is bad enough, but to think of 'little *else* to do' than attend to bees!), who often sigh for forty-eight hours in the day, all of which they could fill with work, and who cannot give half the attention to their hives—if they are bee-keepers—which they require and deserve, even when increased returns would be far from an inappreciable boon to themselves.—C.

PREVENTION OF FOUL BROOD.

Is *salicine* equally efficacious with *salicylic acid* for the above purpose? Through going to a chemist this year to get a supply of salicylic acid, I found out that what was sold to me last year for *salicylic acid* and borax, was really *salicine* and borax. It was very *bitter* to the taste, and reminded me at the time of the salicine medicine which I had been taking: however, having no knowledge of the proper taste of the acid, I did not suppose that anything was wrong, and gave it to the bees, in all confidence, in their food (I also sprayed with it), and certainly on the whole it did them no harm, for they worked vigorously and prospered under the influence of the *tonics*. That which I have now obtained from a chemist for salicylic acid has a *sweetish taste*, and is not bitter at all. He tells me that salicine and salicylic acid have quite different properties, the

former being a tonic and the latter a powerful antiseptic, although both alike come from the willow. In all probability many others besides myself were supplied last year with the *tonic* in mistake for the *acid*, and if any failure by its use either to prevent, or to cure foul brood, perhaps this disclosure may do something to free the acid from the blame.

If you can clear up this question as to the *proper taste* of salicylic acid, it may help to prevent mistakes in the future.

I use the acid in the belief that 'prevention' (if possible) is better than cure;' I should try phenol if 'Bacillus alvei' were to break out among my bees.—H. T. SPICE.

[Salicine is the bitter principle found in willow-bark. Salicylic acid is formed by the oxidation of salicine, and also more cheaply from phenol, which is dissolved in caustic soda, then mixed with carbonic dioxide (CO_2), and heated up to 220°—250°.

Salicylate of soda, that is salicylic acid and borax, is more soluble in water than salicylic acid. Pure salicylic acid is tasteless, salicine having a bitter taste. The former is a powerful antiseptic, much more powerful than carbolic acid, and is used in the treatment of fevers (Query, would it prevent the swarming fever?), while salicine is used as a bitter tonic, and supposed to have the power of arresting agues like quinine, but this has not been proved.

In case you have foul brood to contend against you cannot do better than use pure salicylate of soda, as advised in Cowan's *Hand-book*, or use phenol, buy Calverley's carbolic acid crystals No. 1, and use as directed in a former number of the *Journal* (see *Bee Journal*, August 15th, 1884, page 284).—ED.]

HONEY PLANTS.

I do not remember having seen the *Tritoma uvaria* recommended as a honey plant, nevertheless bees are very partial indeed to this plant in autumn, when few other flowers are to be met with. Our Tritomas bloomed about the time we were feeding up for winter, and it was surprising what a number of bees visited this plant, I counted many bees round one poker-like flower stem; and to see these industrious creatures forcing their way up the tubes of the flower, so as to enable them to reach the nectar, was quite amusing, as they must have suffered a considerable squeeze to allow them to enter at all. As it is still opportune to purchase plants of these, or divide and increase those already in stock, perhaps the hint may not be out of place.

With us the bees work very much upon our plants of Aquiligea or Columbines, and doubtless they obtain both honey and pollen from the same. Unfortunately these plants are limited to the garden, and I do not remember having seen a single plant in a wild state in this neighbourhood, although they are commonly met with in parts of Oxfordshire; and this leads me to believe that they are proof against rabbits, and it is my intention (if spared) to sow all our surplus seed in the neighbouring woods and waste places this autumn, at which time the seed of this plant germinates most readily, but if kept through the winter its vitality seems impaired.

Have any of your numerous readers ever observed how the bees visit trees of the birch? when in bloom I suppose that also should be classed with the legion of honey-producers.

Ivy in this district affords a capital pasture for bees during September and October. Owing to the woods being left almost to their own care, ivy had taken possession of many of the trees, and long since has reached its climax of growth, and flowers freely every year. Last autumn it seemed that the wasps had a monopoly of this plant until very late in the season, when the bees came more to the front. How is the honey secreted in the flowers of this plant? it would appear as though it oozed through the surface of the ovary and that it required moistening with either heavy dews or a slight shower before it became available to bees, as I have frequently noticed the bees visiting the ivy quite early in the day and after slight showers, but the wasps work upon it at any time. Now that the improvement in forestry is engaging the attention of landowners, those ivy-clad trees will soon be almost a thing of the past; at least, considerable inroads have been made in them during the past few years.

What would the secretaries of bee and honey shows say to offering a prize for the best and largest collection of honey-yielding plants and flowers, either in pots or cut and placed in water and arranged so as to produce the best display, and also be labelled correctly with their common name, but not botanically, unless both are given, as I certainly think that the names difficult to pronounce have been the means of preventing many easily cultivated plants from becoming generally known? If productive of no other good it might encourage many bee-keepers who might visit the tent, to add, at least, some of the plants to those they already possess. I am aware that many of our best honey plants will be over before honey shows become general, but there will be plenty left that require extended cultivation if only for the pollen they yield.

The black willow here has been a beautiful sight through a greater part of March owing to the long spell of dry weather, but the prevailing north-east winds have prevented the bees gathering pollen from the catkins when the plants were not near to the hives. I consider the foregoing one of the most valuable trees that can be placed near an apiary.

Our bees, too, have been busy on the pretty red flowers of Prus japonica, which they appear to much appreciate, judging from the numbers which visit the expanded blossoms.

Now is a good season for sowing a good breadth of single wallflowers for transplanting to their flowering quarters later on. When planted early in sheltered nooks in shrubbery borders, this plant flowers much earlier than when exposed in open beds on the flower-garden, and in such a position, in favourable weather, would be much appreciated by the bees.—C. WARDEN, *Clarendon, Wilts.*

DISEASED QUEEN.

I am much obliged by your kindly answering my query about the dead queen I forwarded to you. [See No. for March 15, p. 106.] And I desire now to state honestly that I *knew* there was foul brood in the hive she belonged to; of course, I did not know *she* was affected, though I suspected she was. I have some reason to believe she brought the disease with her when she came to me from an English bee-dealer last year. My object in keeping these facts from you was to make sure that you were right in what you have written as to foul brood, &c. Though knowing but little about bees, I have been somewhat sceptical as to what I have read in the *Journal* about foul brood. Henceforth I shall read and *believe*. I may say I have since examined the hive, and find they—the bees—have made queen-cells, which are occupied by grubs. If queens are produced, of course they will be useless. But do you think the young queens will resist the disease? *I* think they will *not*, as I *twice* tried to raise some in *same hive* last year, and failed. I tried, last year, the cure advocated by Mr. Cheshire, but did not succeed. I find the bees do not care for the syrup after the 'cure' has been put in it. Would it be safe to put the bees of this hive into a healthy hive? Please say; and how would you proceed?—R. P.

[It is not more than ten months since I started those investigations which have scattered almost every pre-

viously held notion respecting foul brood to the winds, and it would be unpardonable vanity to suppose that the whole question has as yet been exhausted. The curious confirmation your queen has afforded of the suspicion I have more than once indulged, in relation to similar, and until lately utterly unaccountable, behaviour on the part of queens which persistently deserted their hives, is to me extremely gratifying.

That queens can and do sometimes bring disease to the stock into which they are inserted, I have put altogether beyond question; and this fact, although perhaps at first unwelcome to dealers, is, after all, an addition to our knowledge, which tends directly to the advantage not only of the bee-keeper, but the dealer himself, since the interests of the two, when clearly understood, are found to be identical. No caution, because no caution was considered necessary in sending out queens, has, no doubt, often been a fruitful cause of calamity by spreading disease, and so many have in disgust given up the hobby. If dealers forewarned now act conscientiously, this can all be avoided, and one of the occasions of disappointment and vexation eliminated.

Your query as to whether queens raised from this mother would be free from the disease, I can only answer with reserve. From such a queen, I should imagine it would be extremely unlikely that any progeny would be actually healthy. She was riddled by the disease in every part, and since I have actually witnessed the pest at work in unlaid eggs, few of hers could be supposed to be free. This malady, although quickly killing the grubs, on account of the extreme softness of their tissues, which allows the bacilli to travel through and through them, does not seem to rapidly make an end of the adult bees; and it will be remembered I have found the disease confined to one and vary in three cases, and confined to the spermatheca in four, indicating that the queen in these cases was born healthy, but had contracted disease at her mating. Another queen was diseased in the liver, and in the liver only, as far as I could find. This clearly proves that in the adult insect the infection may be localised, and assume a chronic instead of an acute form, reminding of a bacillus disease to which *our* poor flesh is heir, viz., consumption, which will remain in abeyance during conditions making for health, and will then, when the vitality is lowered, break forth in one lung, or in the mesentery, or brain; and then more or less quickly wreck the whole organization of the body. It is, therefore, quite possible that a queen may be long diseased, and that her progeny may not be affected until her egg-bearing organs are reached. If this view be correct, and I only feel that the evidence is not as yet sufficient in amount to warrant a very positive assertion, then such a question as the one now in hand admits of no categorical answer. The condition of the queen at the time must be fully known before a definite yes or no can be given, but I would strongly urge the desirability of breeding *only* from queens that have given the very highest results. Never, on any account, allow a cell from a weakling to mature.

With regard to the cure, modesty bids me say little, except that had I the stock, I should feel the most positive confidence in being able to cure it, *i.e.* if the queen be healthy. If she be stricken, at present I imagine cure is impossible.

In reply to your query, Would it be safe to put these bees into a healthy stock? I should say unhesitatingly, *Don't*. Diseased bees are no gain, if added to the healthy. They may not, and probably would not, infect them, because they would be too old to act as nurses, and would toddle off to die when death-pangs began to reach them; but the possible advantage is no compensation for the risk.—Frank R. Cheshire.]

'BEES FOR NEW ZEALAND.'—REVERSIBLE FRAMES.—VEILS.

In answer to inquiries *re* bees for New Zealand, the Agent General informs me that 'the New Zealand Government have not offered a reward for the introduction of humble bees into that country, and moreover that those bees have already been successfully introduced by private enterprise.' Perhaps the above will prevent disappointment to any who intended to try for 1000*l.* which was *not* offered, so I send it to you for publication.

Reversible Frames.—Will any bee-keeper who has *tried* the reversible frames kindly state if the queen-bee readily deposits her eggs in the inverted cells, and if the bees hatch out from them strong and healthy as in the natural position?

Veils—a Suggestion.—I have for some time used a veil with a light cane hoop stitched inside it in such a position as to hang a little below the chin, and as I have found it work well perhaps others would like to try it. I think it beats wire gauze, being more effective, cheaper, lighter, and more comfortable.—B. Flatman.

STANDARD SIZE OF BAR-FRAME OF B. B. K. A.

With regard to the Standard size of bar-frame adopted by the B. B. K. A. on Feb. 15th, 1882, would you kindly inform me, and others, through your columns, if any alteration in, or addition to, the resolution then passed has been since made. I have one of the stamped frames now before me, and in the resolution, as printed on the slip pasted to it, the dimensions are given as follows:—'Top bar $\frac{3}{8}$ in. thick, bottom bar $\frac{1}{8}$ in. thick, side bar $\frac{1}{4}$ in. thick, 14 in. long, and $8\frac{1}{2}$ inch deep.' I ask for information as I was recently persuaded to believe that the B. B. K. A. had added a fixed length for the ends of the top bar, outside the rectangle of the frame.—H. W. Lett, *Ardmore Glebe, Lurgan, Ireland.*

[The total length of top-bar is 17 inches.—Ed.]

Lecture on Bees as Fertilisers, Hybridisers and Fruit-producers, at Maidstone.—A lecture having the above for its title, was given on Thursday evening the 26th ult., by Mr. Frank Cheshire, F.L.S., F.R.M.S., before the Maidstone Farmers' Club and Chamber of Agriculture, at the Royal Star Hotel, Maidstone.

The occasion being somewhat a novel one, inasmuch as it is probably the first in which the subject of bee-keeping in any aspect has been brought under the special notice of agriculturists, it may be well to explain that the Secretary of the Kent Bee-keepers' Association, acting under the impression that the subject of the fertilisation of fruit-blossoms and field-crops could not possibly fail to enlist the interest of an audience composed of Kentish farmers and fruit-growers, made overtures to the above-mentioned Club that a high-class lecture on the subject should be provided. This meeting with a prompt response arrangements were made with Mr. Cheshire to present the subject.

The formal business of the Club and Chamber having been disposed of, the President, G. Marsham, Esq., invited Mr. Cheshire to enter upon his lecture. This he accordingly did, and it became at once apparent that his audience were prepared to devote the closest and keenest attention to every detail of the matter laid before them. To those who have experienced the delight of following Mr. Cheshire in his descriptions of the processes of nature in its truly wonderful arrangements for the propagating of plant-life by the instrumentality of bees and other insects, assisted by most admirably executed diagrams, it is unnecessary to say a word; but to those

who have not been so fortunate it may be said, that words fail to convey a true idea of the pleasure which is realised from both the subject-matter and the mode or manner of its presentation. Mr. Cheshire engaged the attention of his audience for about an hour and a half, and at its close received its warm applause.

Several gentlemen offered observations on the lecturer's remarks, and contributed further interest to the subject. To all of these Mr. Cheshire replied with great exactness thereby gaining additional applause.

A hearty vote of thanks was accorded to Mr. Cheshire for his most interesting and valuable lecture, and with this the acknowledgments of the meeting were given to Mr. Garratt for the part he had taken in bringing the subject under notice. From the success attending the first attempt to bring the subject to the attention of agriculturists, the thought is naturally suggested that other clubs of similar character should be urged to adopt a similar course. By this means the cause of bee-keeping would receive additional support, at least morally, if not materially.

LECTURES.—Mr. A. Watkins, hon. sec. of the Herefordshire Bee-keepers' Association, has recently given four lectures on bee-keeping in that county, at the village schoolrooms at Almeley, Burghill, Much Dewchurch, and Marden. These lectures were illustrated with the series of lantern-slides photographed by Mr. Watkins (all from nature), the subjects being views of bee-gardens in England, Italy, and Switzerland, various kinds of hives, various manipulations, such as examining the brood, taking off sections, extracting, and bee-driving, also photographs of parts of the bee's body, such as the sting, leg, eye, wax-pocket, tongue, &c.

Echoes from the Hives.

North Leicestershire.—During the fortnight ending 9th inst. the bees have only had one really good day; viz., March 28th. On the 4th, 5th, and 6th inst. they were in flight for a short time; but during the remaining ten days they were entirely confined to their hives by bad weather. Twenty-one frosty nights in March, and, up to date, four in April, have kept the fruit-trees from blooming, so that there is, at present, absolutely nothing for the bees to work on except crocuses still in bloom and the willows just bursting out. On the whole, the prospect is not a cheering one.—E. B.

South Cornwall, April 6.—I am inclined to think that this is not a good county for early spring work, the climate is so variable. During the latter half of March east winds prevailed, and it was but seldom that bees were abroad. A fortnight ago I took advantage of a fine day to examine four hives. Two were strong, two had brood, all were well supplied with food. An examination of two of them to-day shows progress. When weather and time combined will enable me to extend researches, I know not. I hear good accounts around me, and some hives are supposed to have been breeding all the winter. If we get another cold spell in a fortnight's time it will be a critical matter for those which do not get attention paid to them. My bees will miss their supplies from gooseberry-bushes, for I calculate that bullfinches have destroyed bud enough to have produced thirty gallons of fruit. I shall look for great results from apple blossom further on, as bud is very thick, but, alas! late frosts are very prevalent here.—C. R. S.

Hereford, April 7th.—Bees appear to have wintered well in this district, and, as far as I can see, without great consumption of stores. My seventeen hives have all done well, all are breeding. I fed up in the autumn with candy (no syrup) placed in frames in the back of the hive. In two cases, where an upper storey had been put on and freely extracted from, there was hardly a pound of honey left below, and they had, therefore, to be fed very liberally. Candy (*in*, not on the top of the frames) has been such a success with me that I shall continue to use it; I fed up two driven stocks with it, giving them empty combs. They have come out well. I have not yet had to feed this spring, but have stimulated by uncapping stores. Weather rather cold with easterly winds, although the sun shows itself frequently. The interest in bee-keeping is evidently increasing in this district.—A. WATKINS.

Bideford, Fairy Cross, April 8.—Made a slight examination of hive on March 19th. Stores in plenty, and everything going on favourably. On April 6th examined all hives (four bar-frame hives and one straw skep). The frames were well covered with bees. Three or four frames in each hive well filled with brood in different stages. In No. 4 hive a few drones were hatched, and several inches of drone brood were capped over. Straw skep not very flourishing, as an old queen presides there. Uncapped a little in each hive, and covered with enamel cloth. Quite enough stores in each to last if weather continues favourable. Pollen has been very plentiful this spring, especially on the willows.—J. N. K.

Newtownards, Ireland.—I examined all the hives in my apiary on 9th March, and found all had still plenty of food, and that in some hives breeding had been going on for some time, and I saw brood in two or three combs in several hives. The weather from about 12th March up to this, 6th April, has been one continued time of nasty, cold, biting north and north-east winds, with an odd day of rain, which soon dried up, and then again the cold, cold wind. Such weather has been good for getting in the crops, but the worst I ever remember for bees, as the sun shining tempts out the bees, which are soon rendered helpless by the cold. To-day, 6th April, my bees are considerably weaker than early in March, and if such weather continues it will play sad havoc among them. Again I am the more convinced of the truthfulness of the old motto of 'Keep only strong colonies,' as they are far better able to stand such weather-tests as we have been experiencing. I put on six dry sugar feeders about middle of March, but with one or two exceptions they remain untouched. In the north of Ireland we generally have milder weather at this season, but we must cheer up, as every cloud is said to have its silver lining. At any rate, I will in future not disturb the bees until April in each year, as March weather is treacherous. I only have had one examination this year, namely, as above on 9th March, but I believe they would have been better without it. Hoping we may all have a good honey season is the wish of—A NEWTOWNARDS BEE-KEEPER.

NOTICES TO CORRESPONDENTS & INQUIRERS.

J. C. L. GILBERT.—1. *Metal Ends.*—If those you have are not removeable, they must be imitations of the real ones which are removeable. You had better consult our advertising columns and obtain the correct invention. It is necessary that the combs should lie flat against the wire of the cage or they will break out. 2. *Sealed Syrup.*—Yes; combs containing syrup sealed over are quite suitable for feeding now. 3. *Simmins' plan of dry-sugar feeding* is well spoken of by those who have tried it, but such a very weak colony as you have we should feed with syrup.

DELTA.—*Amount of Food to leave in Autumn.*—If you take only super honey, and do not take any from the stock hive, that should be enough, except in the case of weak stocks or unfavourable swarms.

A. E. S.—1. *Unsealing Honey in Skeps.*—You may turn up the skep and pass a knife between the combs, and so uncap the honey. Be careful not to injure the

brood if any. You had better uncap the side combs first, which will not contain brood at the present time. 2. *Cleaning Skeps.*—Turn them up and carefully remove all chips of comb and dirt from the edges and scrape the floor-boards—search all cracks for moth-grubs and fill up with putty. 3. *Half-pound Honey Bottles.*—We are not aware of any dealer selling these at present. 4. *Supplying Candy to Bees in Skeps.*—Place it over the feeding-hole. 5. *Bees Dead.*—Without examination, we can only suggest that the cause of death was queenlessness. 6. *Queenless Stock.*—They cannot raise a queen without eggs which of course they have not. You had better unite at once to another stock.

F. Pearson.—1. *Vicious Ligurians.*—Do not say you 'cannot manage them,' but try and do so, especially as they are also, as you say, 'extraordinary good workers and collectors of honey.' If you really wish to exchange them for blacks you need only exchange the queens. Most owners of blacks would be glad to effect the exchange for you. 2. *Queenless Blacks.*—Before concluding they are queenless make another search, and if you fail to find her or any eggs, unite to your other stock at once. The mouldy cells most likely contain pollen and may be disregarded. As the bees require to use the combs they will clear them out.

A. B. C.—1. *Bees refusing Pea Flour.*—This is frequently the case. The bees should be educated to take the pea-flour by filling crocus blooms with it; they will never refuse it when thus offered, and, having acquired a taste for it, will take it from other places; a skep with shavings in it, as described in manuals, is better than a plate. 2. *Sections in body of Hive.*—You may put two or three frames of sections behind the excluder, but not more.

A. Withinshaw.—*Bees at Bournemouth.*—We see no reason why bees should not get on well there. If a few miles inland, all the better, for the reason that, at the seaside, they can only range on one side for food. There is no objection to keeping fowls at an apiary.

H. B.—*Queen outside a Hive.*—As to why she was there we can offer you no reason; but, before returning her, you should have ascertained out of which hive she had come. You probably returned her to the wrong one, and so caused her death.

South Glos.—1. *Comb Foundation.*—The sample sent is correct for sections. 2. *Drone Brood.*—The cells which you found projecting beyond the others contain drone brood. If they exist in worker cells, it is an indication that the queen is old, or at any rate beyond her work, and she should be superseded as soon as possible. 3. *Re-inserting Extracted Combs.*—Place in middle of hive with a frame of brood between them. 4. A species of Bombus.

M. W. M.—*Encasement of Queen.*—If, after examining or otherwise disturbing a hive, you notice much excitement, reopen it; and if the queen is encased you will see a ball of bees, as big as a walnut, on the floor. Direct a puff of smoke on it and the bees will separate; you can then pick up the queen and cage her.

Midlothian.—1. *Transferring.*—As you are, as you say, a novice, you had better do as you suggest, let your skep swarm; hive the swarm in a bar-frame hive, furnished with foundation, and feed until the combs are built out. Twenty-one days afterwards, transfer the stock to another bar-frame hive. If in the meantime a cast should issue, you may hive it in a bar-frame hive, and unite either to the stock or the swarm by feeding, if the weather is bad you should have two good stocks to send to heather. 2. *Feeding.*—Continue to feed gently; if the bees do not take it down, examine your feeder, perhaps the holes are stopped, or the syrup crystallised. 3. *Reversing Frames before sending to Heather.*—The theory is correct; and, as the experienced bee-keepers you name find the practice answers, you cannot do better than follow their advice.

F. J. Chinnick.—*Prevention of Swarming.*—The plan which you suggest was tried long ago, and found not to answer.

Rip van W.—1. *Drone thrown out.*—The drone sent arrived crushed; it appears to be one of this year's. Why not open the hive and ascertain if there are others? 2. *Division Boards in Front and Back of Hive.*—Do not remove the front one yet; the ante-chamber formed by it is a great protection against cold winds. When you find the bees crowded give another frame or two. 3. *Sealed Stores remaining.*—Do not remove the sealed stores. You may uncap them, and the bees will soon use them up. 4. *Queen raising.*—For an amateur the plan described by Mr. Simmins is rather difficult, and you would find the plan described by Mr. Cowan in his book more simple. 4. *Divisional Racks for Sections.*—Having, as you say, ordered one to try, you will soon learn more about it than we can tell you now.

Richard Perrey.—*Modern Bee-keeping*, price 6*d.*; Cowan's *Guide Book*, 1*s.* 6*d.*; to be had from J. Huckle, Kings Langley, Herts.

W. Ditty.—*Size of Section-rack.*—1. The size of the section-rack must depend on the size of the hive. The rack should cover the top of the hive. 2. *Crates.*—We prefer the 'Divisional-rack,' which is the invention of the Rev. G. Raynor, and has been successfully used by him for the last five or six years. He first exhibited it in two sizes—one for 2 lb., and the other for 1 lb. sections—at the South Kensington Show in 1881, both of which obtained high commendation. The rack consists of three separate boxes, each containing seven sections, and by it the heat is retained more effectually than by any rack with which we are acquainted. The separate divisions render it easy of removal and of manipulation in general, and it is especially adapted for ladies' use. 3. *Position of Sections.*—Yes; the sections should range flush with the upper edges of the rack, a bee-space of $\frac{3}{8}$ in. being provided beneath the rack. 4. *Tin or wooden Rests.*—No; we prefer wooden rests. 5. *Tinned Wire.*—The tinned wire, previously recommended, was supplied by Mr. Blow. 'Lemonade wire' might answer the purpose if not too thick and heavy. 6. *Two pound Sections.*—The 2 lb. section—$5\frac{1}{4} \times 6\frac{1}{4} \times 2$ in.—should stand with $5\frac{1}{4}$ side downwards.

J. K. Frost.—*Clustering of Bees, &c.*—The clustering of your bees outside the hive was caused by the old queen being superseded. The young queen might have been killed while transferring, or she might have been lost on her wedding flight, and the colony, having no queen, perished. We advise you by no means to use the old combs. The comb forwarded betrays no signs of foul brood. Allow your colony to swarm, and twenty-one days afterwards transfer from skep to frame-hive.

C. Lake.—1. *Quantity of Syrup.*—If the weather is fine and warm, and the bees short of stores, they would take down three or four pints of thick syrup, but the quantity consumed will depend greatly on the prosperity of the colony and the breeding qualities of the queen. 2. *Artificial Swarm.*—Don't make your artificial swarm until you have ten frames well covered with bees—say towards the end of next month. Take a couple of frames with brood, bees, and honey, on one of which is the queen, and place them in the centre of an empty hive, filling up with full sheets of foundation, and confining the bees to six frames. Set this new hive on the stand of the old stock. Close up the

frames of the old hive by division-boards, and remove it to a new stand. All this must be done in the middle of a fine day when the bees are flying freely. Upon the part containing the queen you may place a super, a few days afterwards, and add frames below as required.

M.—1. *Supering.*—Placing supers on your hive will delay, if it does not prevent, swarming. The number of sections to be obtained from any colony must depend upon the season, and the strength of the colony, and it is simply absurd for an author to lay down a hard and fast rule, such as you state. Swarms always work with more energy than old colonies, and your swarm of the 18th June beating the old stock is just what we should have expected, as the year was exceptional, and the honey-flow continued later than usual. 2. *Robbing.*—The colony which perished during the winter had most likely been robbed in late autumn, and had lost its queen. Cold weather setting in prevented the robbers carrying off the whole of the spoils. 3. Yes; you may remove the outside combs when sealed over, and place full sheets of foundation, alternately, near the centre, when the hive is crowded with bees, and when honey is coming in, or feeding in large quantity is carried on. In the former case sections may be placed on the hive, with a good chance of getting them filled, but this must not be done too early in the season.

A Constant Reader.—*Sugar.*—The three samples of sugar are suitable for making syrup. Sample B is the purest and the best for your purpose.

E. G. Parker.—*Honey.*—The honey forwarded is heather honey; but its taste resembles English heather honey more than Scotch. We should say both samples are the same honey; but that in the bottle has lost some of its flavour by being stirred when bottled. Both are suitable for medicine and household use.

W. C. P.—You would find No. 1 best adapted for making syrup, and No. 2 for dry sugar feeding.

M. H.—*Sections on Frames.*—The alteration from the body-box to over the frames makes no perceptible difference to the pitch of cell. Considerable judgment is required to know just when to remove them. There being a liability of the comb twisting in section if done too soon, before well attached to sides. The sides of the sections which, when in body-box, were next to frames, must, in nearly every case, be placed upwards when changed.

A. E. B.—*Ejected Queen.*—The bee sent was a fully-developed queen. She had apparently received a sting in the fourth, not the third, abdominal segment. The fifth segment was also perforated. She was found by dissection to have been fully fertilised, and we have little doubt that she was the reigning queen of last season, to which you refer as being larger. Queens at this part of the year are perceptibly smaller than at two or three months later. Your hive should be examined to discover its condition. You give no information which could lead to any explanation of either the stinging or the ejection. —F. C.

Received:—*Illustrated Catalogue of Bar-frame Hives and Bee-keeping Appliances,* manufactured by John H. Howard (certified expert B. B. K. A.), Holme Apiary, Peterborough. (40 pp.)—This is a carefully compiled catalogue, containing illustrations of all the necessary bee-keeping appliances; the prices are moderate.

*** *We have given four supplementary pages this number, but several communications are held over till our next.*

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WANTED to Purchase several early Swarms of English Bees. State price and particulars, to be delivered free to Blackwater Station, S. E. R. Address C. KINGSFORD, Blackwater, near Farnborough, Hants. c 64

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FOR SALE.—Several Stocks of Bees in Straw Hives with Crown-boards; other in boxes, all suitable for Supering, 10*s.* each. Also one Abbott's Bar-hive, 20*s.* The whole in good condition. Address P. TONKIN, Padstow, Cornwall. c 67

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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

[No. 169. VOL. XIII.] MAY 1, 1885. [PUBLISHED FORTNIGHTLY.]

Editorial, Notices, &c.

THE BRITISH HONEY COMPANY, LIMITED.

The first public meeting of the above Company was held on Thursday, April 16th, 1885, in the Board Room of the Royal Society for the Prevention of Cruelty to Animals, 105 Jermyn Street, St. James's, when the following shareholders were present:—the Rev. Herbert R. Peel, the Rev. F. W. Scott, Dr. George Walker, Mr. D. Stewart, Mr. W. N. Griffin, Mr. Arthur B. Lipscomb, Mr. G. Drinkwater, Mr. P. W. Brannon, Mr. G. M. Stone, Mr. T. W. Cowan, Mr. G. Henderson, &c. The Baroness Burdett-Coutts, President of the B.B.K.A., was also present during the proceedings.

The Rev. Herbert R. Peel, Chairman of the Board of Directors, presided. The Secretary (Mr. Huckle) read the notice convening the meeting.

The Chairman said that the report and accounts would now be presented to the meeting, which would also be asked to fix the dates of the financial year. He then read the report, as follows:—

'In presenting their first report the Directors have to congratulate the shareholders on the auspicious start made by the Company.

'With shares to the number of 5476 already allotted, there is such evidence of interest in the undertaking as to show that the Company meets an actual want.

'The powers of the Company contained in the very carefully prepared Articles of Association are ample, and the prospect of a good honey season justifies the anticipation of a successful commencement of business.

'The Directors are pleased to note that the shares are taken up by persons of all classes—from the capitalist who looks to the money profit of his investment, down to the humble cottager, who thus shows his interest in an enterprise, which will relieve him of the labour and anxiety of seeking a safe market for his produce. The Directors look for a considerable increase in the number of shareholders, when bee-keepers, as the season advances, can apply part of their honey receipts to the purchase of additional shares in a Company which exists for their common benefit.

'The Directors have also determined that, in purchasing honey, a preference shall be given to honey offered by shareholders, provided that in price and quality the terms of purchase are equally favourable.

'The Board have thought that it will be in the interest of the Company to allow applicants for shares—who so desire—to pay for such shares in honey, provided it is of the standard quality and at the agreed price.

'The Directors are of opinion that, when two-thirds of the authorised issue of shares shall have been taken up, the lists should be closed to the public, and that all remaining shares shall be reserved, in the first place, for allotment among the original shareholders, who will be fairly entitled to have this advantage as pioneers and promoters of the undertaking.

'At so early a stage in our existence there can be little to report beyond sanguine expectations and confident hopes of successful business. The Directors have, however, secured on most favourable terms, suitable and commodious premises for their London depôt and business works at Columbia Market, through the generous aid of Mr. and the Baroness Burdett-Coutts, who have already evinced so much interest in the promotion of the Honey Industry in the United Kingdom.

'The amount of the expenses incurred up to the present time, and of the estimates for further immediate outlay for plant, &c., are laid before you, and will be found to have been carefully and prudently considered.

'You will be asked to confirm what has been done, and to give your intelligent aid in advancing the interest of the Company, by making known among your friends and the public generally, the objects aimed at by the British Honey Company, Limited, viz.:

'The increased production of pure British honey,

'The establishment of a safe and reliable market for its sale,

'And the further development of an industry which, for want of such a Company, has so long languished in obscurity.

'HERBERT R. PEEL, *Chairman.*
DUNCAN STEWART, *Deputy Chairman.*
FREDERICK S. A. HANBURY TRACY.
THOMAS BATES BLOW.
THOMAS WILLIAM COWAN.
GEORGE WALKER.
FERDINAND FRANCIS ZEBETMAYR.
} *Directors.*

'17 *King William Street, Strand, London, W.C.*
April 16th, 1885. JOHN HUCKLE, *Secretary.*'

The financial statement up to the 16th ult. was also read by the Chairman.

The Baroness Burdett-Coutts intimated that Mr. Burdett-Coutts would be happy to take some shares in the Company, and she also believed Sir Stafford Northcote was desirous of doing so. (Cheers.)

The Chairman then rose to move the adoption of the Report and Balance-sheet. He thanked the Baroness heartily for her kind interest in the Company, and felt sure that all the members were gratified on hearing the announcement just made by her ladyship. He felt somewhat diffident in occupying the chair on that occasion in the presence of the Baroness, whom they were all accustomed to see in that capacity as President of the B. B. K. A. However, the Act of Parliament compelled him as Chairman of the Company to preside at the meeting, which was what is called the Statutory Meeting, and required to be held within four months after the registration of the Company. He congratulated them on the fact that the allotted shares numbered nearly 6000, which was a good number con-

sidering that the venture had only been started four months. He thought they would all gather from the Report read that the Company had now been firmly and definitely established, and that, too, at a comparatively small cost, for their total expenses up to the present time had not exceeded 167*l*. It was satisfactory to know that the shareholders had carried out their scheme in the face of a certain amount of opposition. He thought they ought to regard these obstacles placed in their way as a compliment paid to them rather than otherwise. That opposition was based on four grounds in the different journals relating to bee matters which had touched on the question. The first charge was that the Directors were nearly all members of the B.B.K.A.; the second, that they would deal in foreign honey to the exclusion of British honey; the third, that they would lower the price of honey and depreciate its value; the fourth, that they would interfere with the honey fairs held throughout the kingdom. He would like to say something in answer to the two first charges, and leave his brother Directors to deal with the others. With regard to the Directors of the Company being members of the B. B. K. A., he could only say that they would at once plead guilty to that charge, in which they could see no crime. The British Honey Company was quite independent of the B. B. K. A., and owed its existence to the fact that the latter was unable to provide a honey market for its members. Those who were acquainted with the proceedings of the B. B. K. A. would remember that at the general meeting held in the beginning of 1884 in that room, a scheme was proposed for the formation of a honey market, which proposal was shelved for a twelvemonth, it being pretty generally understood that the B. B. K. A. had not sufficient funds to establish a honey market even for its own members. Private enterprise was then tried, but not altogether with success, after which it was determined to form a British Honey Company, for the benefit not only of the members of the B. B. K. A. but of all beekeepers generally, so that they might find a ready market for the sale of the surplus produce of their hives and be sure of quick returns, which was a great boon to bee-keepers. That was the best answer to the first charge against them. He considered their opponents were somewhat partial in their attacks. Some of the gentlemen connected with the Bee Fruit Farming Company were also members of the B. B. K. A., and yet they had not been subjected to similar criticism.

The British Honey Company and the B. B. K. A. were running on parallel lines, which, according to Euclid's definition, never met. The two would never clash, but the former would provide a honey market for beekeepers generally, and relieve the latter of a great responsibility and burden on its finances. The great struggle was how to found a honey market, and the B. B. K. A. had never succeeded in establishing one, because that institution was supported only by the 5*s.* subscriptions of members, and its funds were therefore inadequate to cope with such an undertaking, which required a large amount of capital, and could only be carried out with public money. With regard to the next charge, to the effect that the Company would deal in foreign honey, and swamp a British industry by bringing over honey from California and other parts of America, and, in fact, wherever it could be bought, he could only say there was not the slightest ground for apprehension on that head. When the Directors were framing the Articles of Association they decided, acting under the advice of their solicitors (Messrs. Freshfield), in whom they had every confidence, to take the fullest possible powers for dealing in honey, wax, and all other bee products, and in appliances used in bee-keeping. Those who brought this accusation had entirely overlooked the fact that it was distinctly stated in the Articles referred to that the primary object of the Company was to foster and develope the industry of bee-keeping in this country. They had not the slightest intention of swamping the trade in British honey by introducing foreign produce. They had begun by buying large quantities of British honey, and they would continue to do so as long as that course was practicable. It might, however, happen that bad seasons would visit England, Wales, Ireland, Scotland, and the Isle of Man. In such a case as that, how would they be enabled to fulfil their contracts entered into with co-operative stores, grocers, and others? They would have to say, 'We cannot supply you with British honey, but we will undertake to get foreign honey, and we will guarantee its purity.' It was well known that the foreign honey which had been imported during the last few years had not been of such a quality as to recommend it to the British public. They would all remember what Mr. Otto Hehner had told them in reference to a great deal of the foreign honey he had analysed. He found that a large portion of the public had been eating glucose in some form or other. It had been ascertained that glucose could be manufactured out of anything that contained starch, and it was more than probable that, under the name of honey, the public had been eating old rags, or even cancelled pawn-tickets, which had no redeeming point in them whatever. (Laughter.) The Directors would keep all transactions in British and foreign honey quite distinct from one another, and labels would be prepared to enable them to do so. They would not buy foreign honey and mix it with British, but would sell each separately. In all cases they would guarantee its purity, submitting the foreign produce to the severest test Mr. Hehner could apply. He did not think he could say more than that to clear the Directors of the second charge, and he asked their opponents to give them a year's trial, and then come forward if they could to substantiate their original allegations. With regard to lowering the price of honey they did not expect to lower it below a point at which it would be unremunerative to the producer; but they hoped to increase the demand for honey very much, and open up channels for the sale of it which had never been opened up before, and thus of course the gain must be on the side of the producer. He thought the very extravagant price of honey, up to the present time, had kept it from being used by people in humble life. It had been a luxury hitherto, but they hoped to make it an article of general consumption in the same way as butter and cheese. With regard to honey fairs the Directors did not wish to interfere with them. Their operations were very much confined to the locality in which they were held, and even then in most cases they did not absorb all the honey produced in the neighbourhood; of which the Company had very good evidence, for large quantities of honey had been offered to the Directors from a county in which a fair had been held last year. In conclusion, he was glad to say that the Company was now thoroughly established, and they did not intend to recede from the position they had taken up. That position they owed very much to the assistance given them so generously by Mr. Burdett-Coutts and the Baroness, who had kindly granted them premises at Columbia Market. (Hear.) Mr. Burdett-Coutts had been good enough to say that until the Company was in a flourishing condition he would not expect any rent. (Cheers.) They were anxious that nothing should be kept back from the shareholders; and in order that they might state accurately the present position of their produce they had written to the solicitors, Messrs. Freshfield, asking for a statement of their claim. In reply, the solicitors begged them not to trouble about such costs, and stated that they regarded the undertaking as a philanthropic rather than a commercial one, and that their charges would be as low as possible. He thought the shareholders were indebted to the Directors, who had worked very hard without any remuneration to insure success. They had attended meetings almost weekly

from the commencement, and they had decided that no remuneration should be offered to themselves except out of profits. Their object is to popularise bee-keeping. They were fortunate in having secured the services of Mr. Huckle as Secretary. The accounts were kept by him with the greatest regularity, and the remuneration he received was very modest, indeed. Mr. Huckle himself proposed a lower salary than they had decided to give him, but the Directors had not the conscience to accept his offer, and had therefore fixed on the present sum. Henceforth, when a bee-keeper sent up his samples, they would be examined, and if arrangements were made for its purchase the Company would send him down casks somewhat smaller than those used by the Aylesbury Dairy Company, which will be returned full to Columbia Market, after which the seller would at once get his money. The producer would not be put to the expense of bottling his own honey. The Directors had consented to receive honey in payment for shares in lieu of cash. That was the leading feature of the whole scheme. It was desirable to encourage that mode of payment, by which the shareholder, on the co-operative principle, helped to promote the object in view by doing all in his power to make bee-keeping a national industry, an end which, if possible, was most likely to be effected through the agency of their Company. After a few words in reference to the office furniture and arrangements, which the speaker stated had been decided upon with the strictest regard for economy, the Chairman concluded by moving the adoption of the Report and Financial Statement.

In reply to a question put by the Baroness Burdett-Coutts, the Chairman explained that if it were more convenient to a working man who wished to become a shareholder, he might pay for his shares in honey, instead of in actual cash. The honey could be sent up and valued, shares being allotted according to the amount forwarded. 2*s.* 6*d.*, or its value per share, must be paid on application, 2*s.* 6*d.* on allotment, and the remainder at successive calls of sums not exceeding 5*s.* per share at intervals of not less than three months; 1*l.* being the price of a fully paid-up share.

The Rev. F. W. Scott, in seconding the motion, said that, after the full and satisfactory statement made by the Chairman, they must all fully understand what were the objects of the Association, and that everything connected with it was straightforward and above-board. There was no doubt this Company would promote the industry of bee-keeping very much indeed, and make honey a more common article of food than it was then. There had been a great increase in the sale of it during the last few years, and now there was every prospect of a further development of the trade. He thought it a great advantage to the working man that all the Company's transactions would be on the ready-money principle. He had generally found that people who purchased honey to sell it again were very long-winded in their payments. He himself had not been paid for honey sold the previous year during the months of July and October.

Mr. Stewart said that objections had been taken to the Company by those who supported honey fairs, and called themselves well-wishers of the cottager, on the ground that the effect of their Association would be to extinguish those fairs and lower the price of honey. It must be borne in mind that many people would not send their honey to the shows and to the honey fairs, owing to the cost of forwarding it and the risk of failing to sell it. The Directors had now offers of more than 3000 lbs. of honey which had not been taken by the honey fairs. There was a considerable amount of trouble and risk attendant upon the exhibition of honey at fairs. The exhibitor had to prepare it and pack it carefully, pay the carriage and entrance-fees, and then submit it to competition with the produce of other people. It was not to be wondered at that honey was often returned to exhibitors. There could not be much doubt that the business like and ready dealings of the Company would depreciate honey fairs. By sending honey direct to the Company, the cottager would be sure of a speedy return, without the cost of bottling, &c. There had been an attempt to establish a large honey market at Reading, and Messrs. Huntley and Palmer did their best to assist by introducing honey into many new articles of diet. However, there came rumours of delay and difficulty, and it is believed there was not sufficient capital at command to engender public confidence. There would be no complaints of that sort against the present undertaking.

Dr. G. Walker complained that the gentlemen who preceded him had stolen his best thoughts. He deprecated the artificially high price per pound for honey which had been kept up under the old system. He advocated the principles of free trade in this commodity, as in every other, and instanced America as an example of a protectionist country, where there was far greater distress than in the British Islands. He had known as much as 2*s.*, or even 2*s.* 6*d.*, per lb. paid for honey; but there was no reason why it should not be sold as low as 8*d.* or 9*d.* per lb. In answer to those who objected to the Company on the ground that it would damage the sale of British honey, and destroy the *raison d'être* of the British bee-keeper, he would say that the shareholders had a very simple remedy in their own hands, and that was to turn the Directors out of office after a trial had proved their conduct to be open to question. He thought shareholders would find the Company a safe, if not a very profitable, investment. They hoped to turn over their capital about six times in the year—thus, supposing their capital to be 5000*l.*, and they turned it over six times, they would practically be working with a capital of 30,000*l.*, and 2 per cent on that sum ought to realise a fair profit for investors. Of course they would buy honey in very large quantities, and would obtain the lowest possible rates for carriage.

Mr. T. W. Cowan thought the Directors had taken very judicious powers to sell foreign honey, because this rendered it possible for the Company in bad and unproductive seasons in this country to keep up their supplies from without. Of course, if at any time the supplies failed them, owing to their depending solely on the United Kingdom, their business might be ruined, and all their trouble thrown away, and British bee-keeping greatly injured. A great deal of honey came into England adulterated, and a great deal came there pure, but was adulterated after reaching this country. He thought if the Company guaranteed the purity of all the honey sold by them, the British public should be satisfied.

The Baroness Burdett-Coutts expressed herself highly pleased that the Company had been established while she still held the position of President of the B. B. K. A. It was really a philanthropic undertaking, and could be classed with those which have for their object the benefit of the masses by bringing within their reach pure, cheap, and wholesome food. And the best way of carrying out so good an object was to found, as they had done, a Company on sound commercial principles. She was astonished to hear of the opposition they had met with, but, as she had not followed the subject closely, possibly she did not fully grasp the situation. It seemed to her that the provincial honey markets had nothing to complain of. There was no reason why they should not continue and prosper, as the provincial markets for poultry, cheese, and eggs did. It might be of interest to those who had taken premises for the Company in Columbia Market to know that Mr. Burdett-Coutts was about to get a Bill introduced into Parliament which had for its object to connect a railway with the market; and if depôts and centres could be established in the honey-producing districts, the honey could be run in a single truck right into the market without transhipment, much in the same way that milk, butter, eggs, and other produce, were brought to town from the

country. Her Ladyship concluded by congratulating the members of the B.B.K.A. on the success of the Company up to that time. (Cheers.)

Mr. W. N. Griffin said that while a high price might be obtained for one super at a show, a dozen would be returned unsold. The extravagant prices mentioned he thought were the exception rather than the rule.

The motion was then carried unanimously.

Dr. G. Walker proposed that the financial year should close always on December 31st. The Directors would then have plenty of time to ascertain and discharge all their liabilities, and prepare a balance-sheet and report for presentation to the shareholders in April every year.

Mr. Stewart seconded the motion, which was carried unanimously.

The Baroness Burdett-Coutts stated that it had given Mr. Burdett-Coutts great pleasure to locate the Company in Columbia Market, and that Mr. Harrison, her agent, would be happy to render the Directors any assistance he could.

The Chairman said the Directors highly appreciated the kindness of her Ladyship, and could not sufficiently thank her. He had just received a telegram from the Hon. F. S. Hanbury Tracy regretting his inability to be present that day.

The Rev. Mr. Scott proposed, and Mr. P. W. Brannon seconded, a vote of thanks to the Chairman, which was duly acknowledged, and the proceedings were concluded.

JUDGING HONEY.

It is one of the great disadvantages of living in this sceptical as well as scientific age, that our belief in some of our most cherished ideas gets rudely shaken. The minds of the turtle-loving alderman is haunted by phantoms of the snake-like conger, and even the celebrated recipe of the immortal Mrs. Glasse needs not the much-befriended animal, if we can obtain the associate of Mr. Richard Whittington; and so if to make these respective soups, we can do without either the turtle or the hare, can we not likewise manage to obtain good judging without first catching good judges? We trow not.

It is the peculiar privilege of all Englishmen, not even excluding farmers, to grumble at the weather, the seasons, or anything else, and from time to time letters have appeared in the *Journal* complaining bitterly of the want of uniformity in the judges' awards at different shows, and asking why at one show certain honey exhibits, named from A to Z, should maintain their alphabetical position, while at another show, to use a sporting phrase, Z romps in first and C B A are nowhere: disregarding entirely the popular belief in the uncertainty of English law, those who are dissatisfied with the present state of affairs wish to have some rules or regulations framed, so as to meet this difficulty, and prevent their recurrence. There is no doubt that such a code would be extremely useful to judges who were inexperienced in their work, or even to those who were not, if we could get all of them to taste with the same tongue, or to look through the same eyes, but as tastes differ and opinions as well, it seems to be a hopeless task. There is no difficulty in getting judges to agree in such points as consistency or style of the exhibit, though even here their relative proportion will vary greatly in the opinion of different judges; but when it comes to agreeing as to colour, flavour, and taste, the difference is more widely marked. Some prefer the luscious heather honey, some the delicate flavour of the fruit-blossoms or clover, while certain uneducated palates are tickled with that liquid production of old rags and sulphuric acid. By making separate classes for the different kinds of honey, we can partly solve the problem, but however mechanical we try to make the judging, the same difficulty meets us, and we come back to the point from which we started. It might be possible to draw up a code giving certain points for the various qualities; such as flavour, aroma, &c., and having obtained the assent of the judges, to let the exhibitors know that their honey would be judged by this standard.

But, nevertheless, though taking every possible precaution in our power to establish uniformity in judging, we may take it for granted that the same exhibits will take different places at different shows, unless the same judges are employed.

To get satisfactory awards; satisfactory we mean, not to the unsuccessful exhibitors, for that is impossible, but to the unprejudiced public, the one essential is experienced judges, men of some standing in the bee-keeping world, with a practical knowledge of what the public requires; for that, after all, is the most important consideration. As none of us are infallible, not even the youngest, it is always better to have two or three judges, as there is less likelihood of unsatisfactory awards, due to the peculiar opinions of any one of them, and we would rather that such a one should not judge at all.

(*To be continued.*)

THE BRITISH BEE JOURNAL: PROPOSED WEEKLY ISSUE.

When announcing in our last the possibility of a weekly issue of the *Journal*, and requesting the opinions of our readers as to the advisability of the change, we were scarcely prepared to receive the almost unanimous support which the proposal has elicited. We say 'almost,' for a letter from one of the county secretaries seems to imply a fear that the more frequent circulation of the *Journal* would involve to the secretaries of counties and districts an undesirable increase in their work; but we would hope that in carrying out a weekly issue measures would be adopted which might reduce their labours, and create a desire in many, now only readers of the *Journal*, to subscribe for it, so that at the end of the year they might have in their possession a volume of the facts of bee-keeping to which they might have access.

From the numerous letters we have received we have much pleasure in culling a few as samples of the rest:—

Andrew Buchan, Dalkeith:—'All the readers of your *Journal* here wish to have it weekly. I wish you success.'

C. N. White, Somersham, Hunts:—'I should like to join in the chorus which I believe will be raised in approval of your implied intention to publish the *Bee Journal* weekly. I, for one, shall gladly welcome the change, as I look forward with great interest to the

arrival of the *Journal* every fortnight. I believe the more frequent issue would be greatly valued and properly appreciated, more particularly by those who look to the *Journal* as a guide for the various operations in the apiary. I should like to see "Useful Hints," which to cottagers and beginners in bee-keeping is the most valuable part of the *Journal*, in every issue.'

Rev. W. W. Flemyng, Portland, Waterford:—'I have read the article in the last number on the "proposed weekly issue," and should be very glad to increase my subscription if the change to a weekly issue is made. I hope it will.'

Marcus J. Astle, Wilne Mills, Derby:—'I like the idea of a weekly publication of the *B. B. J.* immensely, and shall be only too glad to pay a double subscription in return for the privilege of reading the valuable information contained in your *Journal* a week sooner, to say nothing of extra quantity.'

J. J. Smyth, Ballinacurra:—'I would be glad if you could see your way to making the *B. B. Journal* a weekly instead of a fortnightly one. I think the move would be to yours and the interests of all concerned.'

J. Kingsmill, Goring:—'As the opinion of your readers is invited on the subject of a weekly issue of the *B. B. J.*, I venture to record my opinion most decidedly in favour of the proposal. The advantages gained cannot be overrated, more especially during the months from March to September inclusive, when one requires most to make use of the valuable hints contained in the *Journal* on bee management. I will certainly not relax my humble efforts to induce all I can to become subscribers, if only for their own benefit.'

Rev. Charles Wood, Salisbury:—'You ask for the opinion of your readers with regard to a weekly issue of the *Journal*. I should say the sooner it is made weekly the better, as bee information so soon becomes, in many cases, comparatively valueless, but I fear the price would have to be reduced; *3d.* a-week would be too much for a good many.'

H. Dobbie, Norwich:—'I am pleased to see that it is the intention of the *B. B. J.* being issued weekly, and I for one will gladly welcome the English weekly *Bee Journal*, or, I ought to say, the British weekly *Bee Journal*.'

Rev. F. Wheatley, Teignmouth:—'I hope the editor will soon be able to give us a weekly edition of the *Journal*, which has been of more benefit to me than any Association. May it continue to prosper!'

SMALL ALLOTMENTS COMPANY.

We alluded in our last to this scheme, which we consider is one in which we, as bee-keepers, should take a marked interest, and which will doubtless be promotive of bee-keeping. The Company was inaugurated on Friday, April 24th, in Willis's Rooms, when the preliminary steps were taken towards the formation of what may be called 'a national land company.' The object of this Company is to purchase large holdings of land, and then to subdivide them into small portions, on a system of deferred payments over a term of years; and also to let land in small quantities where considered desirable. The Earl of Carnarvon occupied the chair on the occasion. Amongst the speakers were the Duke of Argyll, the Marquis of Ripon, Lord Thurlow, Sir R. Loyd-Lindsay, M.P., and Mr. Albert Gray, M.P. A provisional committee was appointed, as well as a committee to inquire how far the present state of agriculture and condition of labour admit of the successful application of industrial partnerships to the cultivation of land in the United Kingdom. In the Association there are *5s.* and *1l.* shares, and the money so raised is to be invested in the purchase of estates. The land so acquired is to be laid out for peasant proprietors or cultivators, for small farmers, for market gardeners, and for people from the towns who may wish to retire to country life and take to gardening, poultry-rearing, bee-keeping, cheese-making, and other minor industries. The scheme is one deserving the most cordial support of the public, and will tend to develope the agricultural resources of the country. The present time is most favourable for this interesting experiment. In every county estates are in the market, and therefore there would be no difficulty in obtaining land. The successful action of this Company would restrain the constant immigration of agricultural labourers to the large towns, lowering wages and increasing the numbers of the poor; and with its aid we might hope to see once more our native land dotted with smiling villages inhabited by a happy and contented rural population.

USEFUL HINTS.

Swarming.—(1) *Natural.*—Amongst our readers there are doubtless many who still practise the skep system, and prefer the natural to the artificial swarm. In early seasons swarms are expected by the middle of the month. The appearance of drones and the crowded state of the hive are the usual premonitory signs, but at this early period there is rarely any lying outside of the bees. The constant rushing out of a handful of bees, running wildly up the front of the hive, and again quietly settling down in a state of sluggishness, are sure signs that a swarm will soon issue. When these symptoms appear the hives should be carefully watched, as many swarms are lost without the owners even suspecting their loss. A swarm, when settled, if not in shade, will rarely remain more than a quarter of an hour; it is important, therefore, that it should be hived immediately the bees have settled. When the bees seem disinclined to settle, water thrown freely from a garden syringe will generally have the desired effect in bringing them down, and causing a settlement.

Sprinkle the cluster with water before hiving, and shake it quickly into a new clean skep; throw a sheet over the mouth, binding it tightly around, and invert the skep under the shade of the tree, allowing it to remain for a few minutes, when it may be wedged up, an inch or two all round, above the sheet, and the bees having all ascended, the cloth may be removed, and the hive allowed to remain until the evening, when it should be removed to the stand it is intended to occupy. We prefer this plan to removing at once, as experience teaches that the bees settle more quietly, and are far less likely to desert. Be careful to get a draft under the hive, and shade with rhubarb or other large leaves, sprinkling the whole occasionally with cold water.

If the swarm is to occupy a frame-hive, it may

be transferred at evening by shaking it upon a sheet in front of the hive, wedged up a couple or three inches, and guided in by a feather moistened with carbolic acid solution. This same feather—a strong goose-quill is best—will be found most useful when a swarm has settled upon a stump, the stem, or thick branch of a tree which cannot be shaken, whence it may be driven with the greatest ease into the skep, placed above to receive it, far better and with less disturbance than by smoke. A wineglassful of carbolic acid to a pint and a half of water is the solution we use; and it should be applied to the stem or branch—not to the bees—to cause them to run. Swarms may be introduced to hives fixed upon legs by shaking out the bees on the frames and guiding them in with the feather.

(2) *Artificial.*—Swarms may be made in accordance with the directions given in the books: see *Cowan*, pp. 84, 86, 131, and *Modern Bee-keeping*, pp. 39–41. Imported queens, or young queens raised in nuclei, should be given to the queenless part when artificial swarming, *i.e.*, dividing, is practised. As a rule, we believe that queens raised by natural swarming are preferable to all others. Artificial swarms must not be attempted until the hives are populous, and, apparently, sufficiently advanced to swarm naturally.

Feeding.—Continue to feed, with thin syrup, all weak colonies, and, in cold or wet weather, strong ones also. All swarms in frame-hives should be covered with enamel cloth, and should be liberally fed until the combs are drawn out from the foundation. Confine the swarm by division-boards, to as many frames of foundation as it can cover—six to eight—according to its size, and add more on the outside, as required, every two or three days. A strong colony will require twelve standard frames, unless supers be given as soon as ten frames are drawn out. If the frames range parallel with front and back the additional frames must be given behind. Feeding during inclement weather is most important. We have repeatedly known bees to perish from starvation in May and June.

Supering.—On strong colonies not intended for swarming, supers, or racks of sections, may now be placed where honey is coming in. The sections should be nearly filled with the thinnest foundation, and $\frac{3}{8}$ in. space allowed between the sections and brood-frames.

We have lately been supplied with a 'Parker's Foundation-fixer'—an American invention—an engraving of which is given in Mr. Cowan's book, p. 64, and which is the best we have seen. By it foundation is rapidly and securely fixed in sections without the slightest difficulty. Every bee-keeper should possess one, the price being 1*s.* only.

All hives, sections, supers, &c., should now be ready for use, since with fine weather we, in the south, may consider ourselves fairly launched into the honey season. The sectional supers we have found to answer best are the divisional boxes, of which a ten-frame standard hive takes three, each containing seven 1-lb. sections.

After this, and next in usefulness, we place the 'section-case,' meaning thereby a rectangular box without top or bottom, in which the sections rest on strips of tin, zinc, or wood, at the prescribed distance from the brood-frames. This 'case,' more readily, perhaps, than any other section-holder, admits of tiering up when partly filled, and of placing another case of sections under it, no mean advantage when we consider that by this plan bees are kept hard at work in storing sections, and prevented from casting swarms, when honey is coming in plentifully. The sections, when in position, must range flush with the upper edges of the case.

General Remarks.—*Ripe queen-cells, i.e.*, sealed over and near upon hatching, should be carefully cut out from hives which have swarmed, enclosed in a cage of wire-cloth, and placed on the feed-hole of any strong colony, being carefully covered with a piece of flannel, where they will hatch out and be fed by the bees. These young queens may be given to nuclei, or introduced to colonies requiring queens after division, or otherwise.

It is more necessary now than ever that bees have a plentiful supply of *water* near the apiary. For want of this myriads perish in the search after water amongst the leaves of all the brassica or cabbage tribes, where they become chilled. Any one may ascertain this fact for himself by carefully inspecting his broccoli or cabbage bed.

Virgil tells us that we are not to allow a yew to flourish near the hives, but it so happens that we have always encouraged the growth of this beautiful evergreen near and around our apiary, without experiencing ill effects. Rather, we say, Do not tolerate the sparrow's or the blue tit's callow offspring near. We have just counted the number of visits paid by a hen-sparrow to our hives, in fifteen minutes, and it amounted to thirteen living bees, sometimes when on the wing, being carried off as a 'delicious morsel to its merciless offspring.' *Moral*, Destroy all nests.

Casts, or second swarms, in May or early June, so far from being worthless, we consider amongst the best; if only their young queens survive their wedding flight. Occasionally, but rarely, fecundation occurs during the swarm flight. Watchfulness is required here; and where young queens are lost, their place should be supplied at once. During long-continued inclement weather fecundation is often long delayed. Three years ago a young Cyprian queen of ours only succeeded in meeting the drone on the thirty-first day of her age, and afterwards proved most prolific. Of this fact we are quite certain, as we had her under daily observation.

All our swarms are covered, 1st, with a sheet of enamel cloth, smooth side downwards; 2nd, a sheet of felt; 3rd, over all a crown-board weighted. By these means we find the foundation more speedily drawn out, and the combs completed, than by any other we have tried.

Beware of Starvation when immature larvæ (white grubs) are cast out from any hive, and supply warm syrup without delay.

In Extracting we prefer to extract only from *perfectly sealed* combs, believing that honey ripened

by the bees in their hive excels in quality and delicate aroma that which has been exposed to the air, or ripened by application of heat or any other process. The quantity obtained may be less, but the quality, in our experience, is surpassingly superior.

EXAMINATIONS.

Candidates who may have entered for the Examination which takes place on Saturday, the 16th inst., are reminded that the Examination will take place in the Council Room of the Royal Horticultural Society, South Kensington, commencing at 10 o'clock.

BLIGH COMPETITION.

(*Continued from p.* 127.)

Mr. F. Woodley, Chilton, Steventon, Berks. May 24th, commenced with a 3 lb. swarm in bar-frame hive. June 2nd, spread brood. July 1st, took off 15 sections. July 4th, took off 2 sections. July 6th, took off 2 sections. Aug. 8th, took off 19 sections. Aug. 17–31, fed with syrup. Sept. 30th, prepared hive for winter. Feb. 12th, found all right.

BALANCE SHEET.

Capital	£2	0	0	Hive, &c.	£0	9	10
38 Sections... ...	2	17	0	Bees	0	12	0
8lbs. Extracted ...	0	8	8	Sundries	0	4	9
				Balance in hand	3	19	1
	£5	5	8		£5	5	8

Mr. J. Arnold, East Molesey, Surrey. May 26th, commenced with swarm of 2 lbs. in Combination hive with bars, not frames, on 5 bars. June 28th, fed more or less to this date. Aug. 20th, fed till Sept. 27th, Oct. 7th, packed for the winter. Feb. 12th, plenty of sealed stores.

BALANCE SHEET.

Capital	£2	0	0	Hive, &c.	£0	14	1½
				Bees	0	8	0
				Sundries and syrup ...	0	9	0
				Balance in hand	0	8	10½
	£2	0	0		£2	0	0

Mr. A. Cooper, Normanton. Hive 4½ lb. swarm in bar-frame hive on 8 frames of foundation on June 12th. June 30th, added three frames of foundation. Aug. 2nd, extracted 14¼ lbs. Sept. 6th to Oct. 30th, fed with syrup. Feb. 24th, found sealed brood on one or two combs.

BALANCE SHEET.

Capital	£2	0	0	Hive, &c.	£0	14	0
Extracted honey	0	15	2	Bees	0	18	0
				Sundries	0	4	10
				Balance in hand	0	18	4
	£2	15	2		£2	15	2

Mr. Henry Coble, Dorchester, Oxon. Commenced May 24th, with 4 lbs. 2 oz. swarm of English bees (on 7 frames of foundation) in 12-frame Combination hive made out of two packing-cases. June 2nd, put on crate of 21 1-lb. sections. June 12th, took off 3 sections. June 17th, took off 3 sections. June 21st, took off 9 sections. June 24th, took off 8 sections. June 28th, took off 3 sections. July 1st, took off 10 sections. July 7th, took off 4 sections. July 12th, took off 2 sections. July 19th, took off 2 sections filled and also the remainder unfilled: extracted from them 3 lbs. July 21st, extracted 6 lbs., gave 2 sheets in place of emptied combs taken out. Nov. 5th, took out 2 combs and packed for the winter. Feb. 12th, stock apparently strong with plenty of sealed stores.

BALANCE SHEET.

Capital	£2	0	0	Hive, &c.	£0	11	8
Sections sold ...	3	0	0	Bees	0	16	6
Extracted honey	0	7	6	Sundries	0	5	6
				Balance in hand	3	13	10
	£5	7	6		£5	7	6

Mr. W. Woodley, World's End, Newbury. Started May 23rd, with 2 lbs. 11-oz. swarm with 12-month queen in home-made hive, Abbott's frames. Fed till June 10th, June 2nd, spread brood. June 10th, put on crate of 14 1-lb. sections. June 20th, put 21 lb. crate under the other. June 27th, took off 14 sections, moved up 14 from lower crate and supplied their place with empty ones. July 2nd, took off 20 sections. July 11th, took off 14 sections, leaving only crate of 21 sections to be finished. July 22nd, took off crate of 21 sections all sealed; put in frame with 6 sections. Aug. 14th, took out frame of sections, 3 filled, extracted 1 lb. from the others. Aug. 29th, extracted 11 lbs. Oct. 27th, packed hive for the winter. Feb. 26th, bees out very strong, interior of hive dry and warm.

BALANCE SHEET.

Capital	£2	0	0	Hive, &c. ...	£0	10	0
Sections sold ...	5	8	0	Bees	0	10	9
Extracted ...	0	13	0	Sundries	0	9	3½
				Balance in hand	6	10	11½
	£8	1	0		£8	1	0

Mr. H. E. Roberts, Gosmore, Hitchin. Started May 20th, with 2 lbs. of bees headed by Italian queen, in single-walled twin hive, on 3 close ended frames of foundation. May 30th, added 1 frame. June 10th, added 2 frames. June 18th, added 2 frames. June 25th, added 3 frames. July 4th, took 3 frames of brood and one of honey to make hive No. 2, to which a fresh queen was added. July 5th, released queen, took out the frame of honey. July 11th, put back empty comb in No. 2. July 19th, moved 1 frame brood and 1 frame honey from No. 1 to No. 2, added and changed frames till end of August. Feb. 28th, have not opened hive, but believe them to be all right.

BALANCE SHEET.

Capital	£2	6	0	Twin hive ...	£0	9	4
Honey extracted	1	5	3	Two lb. bees ...	0	8	0
				Sundries	0	4	5
				Balance in hand	2	3	6
	£3	5	3		£3	5	3

Mr. E. C. Youens, Weithell, Dartford, June 20th, commenced with a swarm of 5 lbs. 2 oz., on nine frames of foundation, in one of Baldwin's Kent and Sussex single-walled prize hives. Added a piece of board on either side and also slides to entrance. June 21st, several sheets drawn out. Put on feeder. June 27th, nearly all foundation drawn out. June 30th, removed feeder. Saw plenty of brood. Put in frame of sections. Aug. 14th, removed frame of sections put in on June 30th, as the bees had not worked them at all: extracted 2 lbs. Oct. 31st, prepared for winter: bees not very numerous. Feb. 4th, all going on well.

BALANCE SHEET.

Capital	£2	0	0	Hive, &c.	£0	14	3
Extracted honey	0	2	0	Bees	1	0	6
				Sundries	0	0	7
				Balance in hand	0	6	8
	£2	2	0		£2	2	0

Mr. F. H. Cudd, Stately, Chislehurst. Commenced June 2nd, with a swarm of 4 lbs. in home made hive: fed at once. June 7th, fed again. June 9th, ditto.

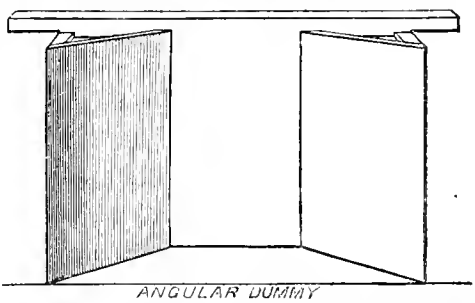
June 27th, put on crate with 21 sections. Aug. 5th, took off crate; 10 sections filled; extracted from nest and 5 frames 9 lbs. Aug. 29th, extracted 4½ lbs. Aug. 30th to Oct. 16th, fed freely. Feb. 24th, found plenty of food and brood, reduced hive to 5 frames.

BALANCE SHEET.

Capital	£2	0	0	Hive, &c.	£0	15	9
Sections sold ...	0	15	0	Bees	0	16	0
Extracted ...	0	13	3	Sundries	0	4	9½
				Balance in hand	1	11	8¼
	£3	8	3		£3	8	3

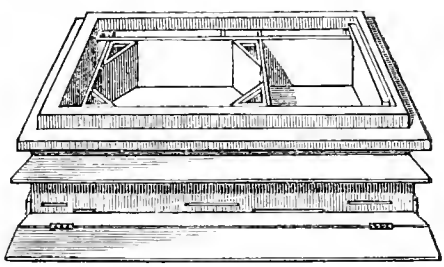
THE 'CONVERTIBLE OCTAGON' HIVE, AS SHOWN AT THE INTERNATIONAL HEALTH EXHIBITION BY THE REV. J. LINGEN SEAGER.

The speciality of this hive consists chiefly in the form and management of the *dummies used*. These dummies



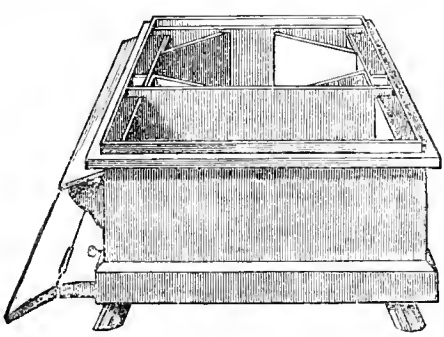
ANGULAR DUMMY

are on one side plain, on the other side they present a concave surface, consisting of three equal sides; these concave sides are for wintering, and are then placed for



FRONT VIEW OF HIVE

that purpose facing each other, so as to *form with the sides of the hive an octagon*. By this means the cold corners, which in winter being never occupied by the



END VIEW OF HIVE

bees, serve only to reduce the temperature of the hive, are got rid of. On each of these dummies hang two *special angular frames*, and between them can be placed as many ordinary frames as may be required. After the winter these dummies may, one or both, be either reversed or removed, or, better still, be moved together to one end of the hive, where with one frame of brood between them they make an excellent nucleus for queen-raising, for which purpose a separate small entrance is provided.

HONEY AS FOOD AND MEDICINE.

(*Continued from page* 126.)

(7) *Honey Sponge Cakes.*

Take a breakfast-cup of honey and of flour, and five eggs. The yolks must be mixed with the honey and the whites whipped up, and the ingredients then mixed up together with as little stirring as possible. A little lemon-juice added will give a better flavour.

(8) *Fruits Preserved in Honey.* (*Cold.*)

Take off the stalks of grapes, or any other fine fruit (cherries, damsons, gooseberries), and put them in a jar, and pour cold honey over them until they are quite covered. Hermetically seal it without heat and keep in a cool place. They will keep fresh for months.

(9) *Grapes Preserved in Honey.* (*Warm.*)

Take 7 lbs. of good wine grapes with their stalks, pack them carefully in a jar without bruising them; make a syrup of 4 lbs. of honey, a pint of good vinegar, and cloves and cinnamon according to taste. Boil the syrup for twenty minutes, skim it carefully and pour it boiling hot over the grapes, and seal up at once. They will keep perfectly good for years.

(10) *Honey Vinegar, with the dregs of Honey and Inferior Honey.*

Take six quarts of water, two pounds of honey, a crust of bread or some leaven, place the stone vinegar barrel in a warm place; after the fermentation has ceased cover the bung-hole with a rag, but not quite to exclude the air. When the vinegar becomes clear, run it off into bottles for keeping.

(11) *Grog.*

Mix one part of rum, or cognac, with from two to four parts of cold, or boiling water; sweeten with honey to taste, to make either cold or hot grog.

USE OF HONEY FOR WINE, &c.

(12) *Grape Honey Wine.*

Mix 100 quarts of pressed grapes with about 10 lbs. of honey, and 20 bunches of hops, and 50 to 100 quarts of lukewarm water; let the mixture ferment, and then press it. This will make a sound dinner wine, for the hops give it a fine bouquet. The pressed grapes afterwards give good brandy.

(13) *Honey Liqueur.*

In a copper vessel, or enamelled kettle, mix two parts of water with one of honey; let it boil for two hours with constant stirring and skimming. After it has got cold, pour it into a barrel, where the fermentation may continue for eight of ten weeks, and then put it into bottles. It has a Madeira flavour, and can be used as a dessert wine, and improves very much with age.

(14) *Mead.*

In the north of Europe, mead is a favourite drink, which is used like wine or beer. In bee-literature there are a great many recipes. These are mostly so minute that I do not give them here, and limit myself to the following very simple recipe: 'Mix honey and water in a cask, let it ferment, and draw it off.' The quantity of honey which has to be used depends on the strength of the mead. About half a pound of honey to a quart of water gives a wine which in alcoholic strength is like a common grape wine. If more honey is used, the drink seems too strong, it is like the Spanish wines. The fer-

mentation lasts some weeks. To hasten this, add a little yeast or wine dregs.

Honey as Medicine.

Honey is not only a welcome addition to the food of the healthy, it is also a welcome medicine to the sick, or rather a vehicle. How many sufferers have not already been freed in the simplest and most welcome way from a worrying cough, from pain in the chest, from sore throat, and many other complaints, by means of a spoonful of honey? To how many elderly persons, who suffer from asthma and have often at night a most violent attack of this complaint, has not a teaspoonful of warm honey brought immediate relief?

The sick man seeks help where he can. Often he contents himself with drinking the most insipid broth made of boiled roots or leaves of different plants. Why should not others prefer honey, which is the finest and the most aromatic substance that the young blossoming plant would offer us?

It is a matter of congratulation that in recent times scientific and accomplished physicians lay themselves out to order this most precious product in many diseases. In *The Bees and their Management*, a Professor of Medicine has lately spoken of the use of honey as a medicine in a distinguished article, in which is so forcibly shown what a noble product we have in pure honey, and how foolish it is to believe that it can be replaced by various kinds of sugar.

'Honey,' this physician affirms,' disturbs the formation of fungoid growths, and has therefore been of great use as a preservative in thrush in babies.

'Worked up into an ointment with flour, it is the best remedy for boils.

'Used internally, honey cannot be too highly praised: by its use incipient coughs, colds and catarrh, quinsy in its early stages, diphtheria in the embryo stage, is destroyed by it, and bacteria as well as fungoid growths.

'For diseases of the palate, throat, and breathing organs, pure flower honey, especially strained honey, has proved itself to be infallibly of use, especially when used continuously and with a corresponding diet.

'When a teaspoonful of warm honey is taken every fifteen, twenty, or thirty minutes, it has a surprising effect on catarrhs, and many a consumption of the lungs would be hindered in its formation by its use, as well as stomach complaints.

'Every family should have a glass of pure honey in the house, in order at once, after catching cold, to be able to use some. Many a valuable human life would be preserved thereby.'

(*To be continued.*)

Erratum.—P. 126, 6th recipe, *for* strong honey *read* slung honey.

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee Meeting held at 105 Jermyn Street, on Wednesday, April 22. Present, T. W. Cowan (in the chair), Hon. and Rev. H. Bligh, the Rev. H. R. Peel, the Rev. Geo. Raynor, the Rev. F. S. Sclater, J. M. Hooker, R. J. Hinton, G. Walker, D. Stewart, and the Secretary.

Letters were read from Captain Bush, R.N., and the Rev. F. G. Jenyns, regretting their inability to be present, the former on account of illness.

A letter was also read from the British Dairy Farmers' Association, regretting their inability to entertain the proposal of the B. B. K. A. to hold their Annual Exhibition of Bees, Hives, Honey, &c., in connexion with the Annual Dairy Show.

The Committee having transacted some routine business, it was resolved to hold an adjourned Meeting on Friday, May 15th.

Quarterly Meeting of County Representatives.

Present—The Rev. Thos. Sissons and G. Allen, Kent; the Rev. W. E. Burkitt, Wilts; the Rev. Astley Roberts, Herts; Mr. C. H. Haines, Worcestershire; Mr. Waters, Surrey; Mr. W. N. Griffin, Devonshire.

The minutes of the last quarterly conference were read and confirmed.

The Secretary reported that he had issued a circular to the secretaries of the County Associations setting forth the method of procedure to be adopted in the prosecutions of the vendors of adulterated honey.

The Secretary further reported that he had communicated with a few of the leading publishers of school reading books, some of whom had expressed their readiness to consider the proposal of incorporating a few chapters on bee-keeping in their future issues of advanced readers. Resolved that this question be referred to the Educational Committee.

The reply of the Board of Trade in respect to statistics relating to the importations of honey being inserted in the monthly returns was read and considered to be satisfactory.

Replying to inquiries, the Secretary stated the issue of the bound volumes of reports had been delayed owing to the non-arrival of the reports from the Sussex, Lincolnshire, Lancashire and Cheshire, and the Carmarthenshire Associations.

A lengthened discussion ensued respecting the delay which had hitherto existed, and the proposal for naming a fixed date for holding the Annual General Meetings of County Associations. The secretary reported that communications had been received in favour of the proposal from the Worcestershire, Somersetshire, and Cornwall Associations, and against the proposal from the Hants and Surrey Associations. The Berkshire Association considered that it was advisable for the meetings to be held in January, but that it might be difficult to carry out such a rule. It was pointed out that provision for sending in the Reports by February 1st was already made in the conditions of Affiliation, and if the rule was adhered to there would be no cause for complaint. It was resolved that the following resolution be entered on the minutes:—

'That this Conference learns with regret that the rule requiring the holding of the Annual General Meetings of the County Associations in January is not so fully observed as could be wished, and urges the county secretaries to use their best endeavours to secure conformity to the rule.'

On the motion of Mr. W. N. Griffin, it was resolved that in future the volumes should be issued immediately after the 1st of March.

A leaflet, *How to commence Bee-keeping*, was submitted for the consideration of the Representatives, and suggestions were offered in respect to the same.

The Rev. W. E. Burkitt gave notice that at the next Quarterly Conference, he would move that the B. B. K. A. be requested to take steps for the translation of the skep pamphlet into Welsh.

The next Conference was fixed for Wednesday, July 22nd.

The Quarterly Conversazione was then held, at which Mr. W. N. Griffin read a paper on 'Honey and Wax.' This, and the discussion thereon, will be given in our next number.

BUCKINGHAMSHIRE BEE-KEEPERS' ASSOCIATION.

The Quarterly Meeting of the Committee of the above Association was held at the 'George' Hotel, Aylesbury, on Tuesday, April 7th:—Present, the Rev. H. R. Peel in the chair, the Rev. E. Clay, Mr. W. Sturdy, the Rev. A. Newcombe, Mr. J. K. Fowler, and the County Secretary (the Rev. F. Sclater, of Dropmore Vicarage, Maidenhead).

The County Secretary presented the quarterly balance-sheet, showing a balance in hand of 22*l.* 3*s.* 6*d.* He reported that the increase of interest taken in the Association and its work was most encouraging, and that the new members who have joined the Association since the commencement of the current year now numbers eighty-eight. Of old members, 256 have paid their subscriptions for 1885, leaving sixty-four subscriptions still to be collected.

The reports from the eighteen districts into which the county has been divided showed that the meeting of members in each district was proving most useful by giving information to the members about the plans of the Committee, and enabling the District Secretary to ascertain and report to the Committee the views of his district members.

The spring expert's tour is now just commencing. Those members only who have applied for a visit will receive one, application to the County Secretary being now needed for both Experts' visits and *Journal* circulation.

The Committee proposes to hold Honey Exhibitions this year at the Horticultural Shows at the following places:- Aylesbury, July 9th; Stony Stratford, July 23rd; Buckingham, July 28th; Cobbrook, Aug. 3rd; H. Wycombe, Aug. 19th. Schedules and all other information may be obtained through the District Secretaries, or from the County Secretary. These Schedules will be found published in the printed Schedules of the Horticultural Societies. The Association is trying to secure smaller exhibitions of honey in other parts of the country, to encourage local interest in bee-culture.

The Committee has decided to lend the Bee Tent (free of charge) to any members who desire its use for giving exhibitions in their neighbourhood. No expense will be incurred by the Association in connexion with such exhibitions. Application should be made to the County Secretary.

IRISH BEE-KEEPERS' ASSOCIATION.

The first apiarian exhibition for the year was held as usual, at Ball's Bridge, on 7th, 8th, 9th, and 10th April. The exhibits were large and numerous. Sales were rapidly effected, apiculturalists seizing the opportunity to add to their stock of bee furniture, and to provide themselves with other requisites. Mr. S. J. Baldwin lectured and manipulated in the Bee-tent; great interest was shown in the proceedings, and Mr. Baldwin was vigorously questioned in the intervals between the lectures, both by those about to become bee-keepers and by many who wished to increase their knowledge.

The prize list was as follows:—

Class 1.—For the best bar-frame hive, with super for general use, price not to exceed 15s. 1st prize, silver medal, Mr. S. J. Baldwin, Bromley, Kent. 2nd prize, Mr. W. Lonsdale, Lurgan. 3rd prize, V. H. C., Mr. S. K. Twigg, Rickview, Bray.

Class 2.—For the most economical hive on the moveable comb principle, for cottagers' use, with arrangements for summer and winter, price not to exceed 10s. 6d. 1st prize, silver medal, Mr. S. J. Baldwin. 2nd prize, bronze medal, Mr. W. Lonsdale. 3rd prize, H. C., Messrs. Edmondson Bros., Dame Street, Dublin.

Class 4.—For the best and most complete frame hive for general use in an apiary. 1st prize, silver medal, Mr. S. J. Baldwin. 2nd prize, bronze medal, Messrs. Edmondson Bros. 3rd prize, H. C., Mr. W. Lonsdale.

Class 5.—For the best frame-hive for extracting purposes. 1st prize, silver medal, Messrs. Edmondson Bros. 2nd prize, bronze medal, Mr. S. J. Baldwin. 3rd prize, Messrs. Edmondson Bros.

Class 6.—For the best frame hive for general purposes, made by an amateur. 1st prize, silver medal, Mr. R. Sproule, Fairview, Co. Dublin. 2nd prize, bronze medal, Mr. J. K. Millner, Cherbury, Blackrock, and Mr. W. J. Stanford, Onnavarra, Lucan, equal.

Class 7.—For the best hive for observation purposes, all combs to be visible on both sides, stocked with bees and their queen, and containing not less than three frames of comb. 1st prize, silver medal, Mr. W. Lonsdale.

Class 9.—For the cheapest, neatest, and best supers for harvesting honey in the comb, in a saleable form. 1st prize, bronze medal, Mr. S. J. Baldwin. 2nd prize, Messrs. Edmondson.

Class 10.—For the best sectional super adapted for straw skeps. 1st prize, bronze medal, Mr. S. J. Baldwin. 2nd prize, Messrs. Edmondson Bros.

Class 11.—For comb foundation; pure bees-wax to consist of 2½ lbs. thick (worker cells) for stock hive, and 2½ lbs. thin for supers; price per pound attached. 1st prize, bronze medal, Messrs. Edmondson Bros.

Class 12.—Miscellaneous. For the best and largest collection of hives and bee furniture most applicable to modern bee-keeping; no two articles to be alike. 1st prize, silver medal, Messrs. Edmondson Bros.

A special exhibit of 'Honey in its applied forms' was submitted to the Judges, comprising confectionery, medicine, toilet articles, chocolate creams and tablets, 'honeydrop biscuits,' &c. The Judges unanimously agreed that the exhibit was of especial merit, and recommended the Committee to award the exhibitor, the Rev. V. H. Moyle, Ashampstead, Reading, Hon. Sec. Berks Bee-keepers' Association, a *special* prize of a silver medal for the exhibit.

The exhibits were placed in a large marquee, and presented a most attractive appearance; the arrangement and neatness of the hives and other articles of bee furniture were greatly admired by the numerous visitors to the exhibition.

The class for the amateur hive maker showed what progress apiculture is making of recent years. Mr. Sproule's hive, which took first prize, was thoroughly well made, and each part showed the care and thought bestowed on it, to bring the exhibit as near perfection as possible. The exhibits of Messrs. Millner and Stanford were very good indeed, and the judges decided that each exhibit was worthy of the second prize.

Mr. Twigg's hive, in Class 1, possessed many excellent points. Mr. S. J. Baldwin's exhibits were, as usual, of the highest class; he carried off many of the first prizes.

Messrs. Edmondson Brothers, 10 Dame Street, Dublin, exhibited a number of bar-frame hives of their own manufacture, suited for all classes of bee-keepers. Their No. 1 Cottager's Hive, with nine frames and super, is a good and useful article, at a low price. The Improved Premier Hive which they exhibited is larger than the original one, which, at various shows, has won so many prizes; it is removeable from the stand, has increased space to hold the section frames, two dummies and super of twenty-one sections. It is double-walled and packed with cork on the four sides, has hinged roof, and is well painted. This hive, with deeper roof and super of bar frames, was shown as an extracting hive and awarded the first prize in that class. In the same class their No. 2, Cottager's Hive, on stand with four legs, painted, with body hive removeable, ten bar-frames, double sides and super with twenty-one sections, is one, in every way, suitable for an apiary, and very moderate in price. The collection shown by this firm was an extensive one, and was awarded first prize. It consisted of supers, sections, smokers, feeders, veils, uncapping knives, extractors, gloves, &c., in fact, almost every item required by bee-keepers. The bar-framed hives in this collection were of a kind described above, with addition of several not entered in those classes. Amongst the straw hives was a new one, rectangular, with wooden crown, and fitted with super of twelve sections and wooden roof; a most useful one for cottagers who are not prepared to take to the bar-framed hives.

Mr. W. Lonsdale, of Lurgan, exhibited some very pretty hives, well made and painted. His observatory hive was a constant source of instruction and amusement to the visitors at the show.

Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of March, 1885, amounted to 5404*l*. [From a private return sent by the Principal of the Statistical Department, Her Majesty's Customs, to E. H. Bellairs, Wingfield House, Christchurch.]

MANAGEMENT OF SUPERS.

The bee-keeper should have his stock of sections on hand by April at the latest; and by that time it should have been decided whether it is better to use only starters, or full sheets of foundation. For comb honey I have found no economy in using anything less than a full-size sheet, say reaching to within one-fourth of sides and bottom. None but worker foundation should be used, and by inserting a full sheet there is little possibility of any drone-cells being added. If the latter are thus always excluded, the queen will seldom spoil a section, especially if one or two small patches of drone-comb are allowed in the brood-nest.

As to foundation, I have found the flat-bottom Van Deusen better than any other make: the very thin base, when converted to the natural shape by the bees, is equal to that of any naturally built comb, while the wax is so soft and pliable that foundation of this manufacture is worked at in outside sections before that of other kinds will be touched, even if the latter be placed quite in the centre. Several dealers in this country have this pattern on sale; when ordering, ask for about ten feet to the pound.

Early in the season, from eighteen to twenty-four sections (1 lb.) will be enough to start with, and any open space left about the top of the brood frames, when crates or racks are used, should be carefully closed with any suitable material on hand, and the whole well covered with soft oat chaff, either in bags, or packed crown boards.

If a colony has been carefully worked up, there ought to be no difficulty in getting the bees into the supers when honey abounds. If new foundation, or nice combs left from the previous autumn fail to accomplish what we wish, then a more effectual course must be adopted, and that is, to reduce the number of brood-combs, removing those outside combs which contain least brood, and then crowd up with division boards.

As the season advances, a larger number of sections may be allowed at one time, probably from three to four dozen, and when these cannot be accommodated, or sufficient room given in one storey, place others *above* those first begun, when the latter will still be carried on towards completion, and the surplus population will make a start in the upper tier. On no account place the new tier of sections between the first set and the brood frames, or those already nearly finished will be neglected for those nearest the brood chamber, with every probability of but few out of the whole number being finished satisfactorily.

Just as in working several tiers, those already well advanced being kept nearest the brood chamber, so in working one storey, it will be found that those nearest the centre will be completed first; and when removing these, whether separators be used or not, be very careful to bring those next in order towards the middle, and let the sections with foundation be placed towards the ends of the rows.

By strictly adhering to this plan, it will not be found necessary to reduce the number of sections towards the close of the harvest to such an extent as some writers have advised, seeing that the more advanced combs are always placed where there is most heat, and therefore where they will be rapidly finished off. On the other hand, I strongly advise that the number of brood frames should be reduced at that time, and thus keep the bees crowded into the supers much later in the season than otherwise would be the case.

When no more honey is likely to be obtained, all supers must be removed, and those not properly finished may have their contents extracted, when several crates of such combs damp with honey should be placed over strong colonies to be cleaned, and then all may be stored away in a perfectly dry condition.

In districts where heather abounds all supers should be removed and treated as above as soon as the earlier supplies are over, and then the best combs rearranged over good stocks for this final harvest.

In the interval, however, every stock comb which can be relieved of its stores without danger to brood, should be passed through the extractor and then inserted at the centre of the hive; uncap such as cannot be extracted, or feed if necessary, and do everything that can be done to induce continued breeding, so that the hives may go to the moors with every stock comb crowded with brood, when there will be every probability of a good store being obtained in sections.

At all times when either stock or super combs are being built, the hives should stand perfectly level. If more attention is given to this matter, little trouble will be experienced by those who hope to do away with separators, providing sections are used which are not more than $1\frac{3}{4}$ inch thick.

During the working season, with no fear of robbing, the very best time to examine hives is during the busy and warm hours of the day, and it is then that all sections should be removed, according as they are completed. There will then be but few bees to shake off, and these so full of honey that they leave readily and do not attempt to pierce the cappings; but when the operation is delayed until evening there are so many bees at home relieved of their loads, that at the first disturbance a number of cells are immediately broken open, giving the combs an unsightly appearance.

I have stated in a former paper that when a stock swarms, the supers are returned at once upon the new lot which has been placed on the stand recently occupied by the old hive, when the work is continued with even more energy than before. Though the matter seems simple enough, it is just at this stage where very many despair of ever seeing their sections completed.

Hives must be shaded during very hot weather; allow as wide an entrance as possible and remove some of the quilting during the day. Be very careful to cover up warmly at night, and rest assured that such extra labour at this time will be repaid a hundredfold.—S. SIMMINS.

HONEY PLANTS.

Melilotus leucantha, a biennial, is a plant we hear little spoken of, but is a most valuable one, judging by the way it is frequented by bees and all kindred insects. I had nearly a quarter of an acre of it last year; during the time it was in flower it was covered with bees the whole day. My sowing of it last year, owing to the drought, was a failure, though millions of seedlings came up where plants stood. I ploughed them down, the land got so dirty through being nearly two years out. I would recommend its being sown in drills now as for turnips, the ground can then be kept clean with the hoe.

Trifolium incarnatum I find a most valuable plant, Ligurians and blacks working equally well on it; the hot, dry weather last year suited it admirably, in wet weather it is not touched.

Buckwheat comes in when most of our honey-producing plants are gone, it at times affords a good deal of honey, though it gives the hives an unpleasant smell. Propolis is largely collected off buckwheat.

Ivy gave a most astonishing amount of honey last year. Many of my hives were completely filled with it. I think it was the bee plant of the year.

We have a great promise here of pear and apple blossom.—J. J. SMYTH, *Ballinacurra, near Cork.*

APICULTURAL DIPLOMAS.

Those who, like me, have watched for many years the prominent position that bee-keepers as a body have acquired, not only in this country but also in the sister isle, must naturally wonder that the various County Associations have not made an effort to institute some sort of rules by which they could confer diplomas (such as are given by the Royal Geographical and other learned societies) on those who may deserve them. If this was the ease, the various members would, I believe, from a popular point of view, be looked up to and treated accordingly.

As an outsider, and one not connected with bee-keeping, I hope that such men as the Rev. H. R. Peel, Messrs. Cowan, Griffin, Tite, and others, who are the pioneers of bee-keeping, will fully consider this proposal of your humble servant.—W. O'B. J., *April* 15.

SUSSEX COUNTY ASSOCIATION.

Can you tell me what has become of the Sussex County Bee-keepers' Association? I do not see it included in the list which has been published from time to time in the *Bee Journal*. It seems to have died out during the absence of Mr. T. W. Cowan, who has been spending the winter out of England. I see, however, in the account of the first general meeting of the British Honey Company, in the *Investor's Guardian* of April 18th, that Mr. Cowan was present, so I hope that he will soon put matters straight again, and that Sussex will resume her former place amongst the County Association. With such bee-keepers as Messrs. Rusbridge, Simmins, Overton, &c., Sussex never ought to have let its Association drop, but I suppose they wanted a leader. —BRIGHTONIENSIS.

CAMBRIDGESHIRE AND ISLE OF ELY BEE-KEEPERS' ASSOCIATION.

The letter in your last issue referring to the Cambridgeshire and Isle of Ely Bee-keepers' Association is not altogether accurate, but there are others more fitted than I to correct it. Few, however, know how much the Cambridgeshire Bee-keepers' Association owes to the British Bee-keepers' Association. At that time I only knew of three bee-keepers within five miles of Cambridge who used bar-frames, but before the end of the following summer both bee-keepers and hives had greatly increased, notwithstanding that the Association had spent most of its first year's income in a vain endeavour to get adequate support from the Wisbech bee-keepers, who then as now were said to be so numerous.

How many of the present supporters of the Association owe their knowledge of bee-keeping to the help given by those starting it I do not know, but there are probably few who are not indebted directly or indirectly to the work of the parent Association, and surely it is but poor gratitude to turn now and refuse to have anything to do with it. Surely, too, bee-keepers, daily learning lessons of their bees, should be of all men the last to forget the importance of unity.—G. D. HAVILAND.

I am afraid there is a good deal of truth in what Mr. Dann, of Wisbech, says as to the inactivity of the Cambridgeshire and Isle of Ely Association. But is not this the fault of the bee-keepers themselves? He complains that the meetings are held at Cambridge. Is not this reasonable when nearly all the members reside either in the town of Cambridge or within easy distance of it? Why should we be dragged to Wisbech, a journey of about 1½ hours from Cambridge, when the members in that district number but one or two? If there was a large number there, it would be a different matter. It seems that Mr. Dann has been a member of the Association, but his name does not appear in the 1884 list, and in that of 1883 no subscription is entered against his name. I am surprised he did not receive a notice that his subscription was due, as well as a notice of the meetings at Cambridge. The Wisbech bee-keepers have done *very little* to help the work of the Association. The reason why the Association has been unable to do more was, the want of funds and the inability to find a local expert. The former is due to the very little interest shown by bee-keepers of the county generally in the cause. It was decided to hold the first show at Wisbech, because the Committee thought the bee-keepers of that part of the county were in advance of the rest. Thanks to the indifference of those bee-keepers, it proved to be a costly failure, from which the Association has not yet recovered. Surely there are some bee-keepers in the Wisbech district who would like to see the Cambridgeshire and Isle of Ely Association in a better position. If so, let them join at once, and also become active members of the Committee. It must not be supposed that the Association has done nothing in this part of the county. The bee-tent, experts from other counties, the hon. sec., and members of the committee, have taught many persons the advantages of bee-keeping, and especially upon the bar-frame system. In this parish, containing about 1800 inhabitants, and certainly not a *good* honey district, where, five years ago, I was the only one with a bar-frame hive, there are now fifteen bee-keepers who have adopted that system. Most of these were members of the Association last year, but considered the advantages not sufficient to induce them to continue their subscriptions of *5s.* or *2s. 6d.*, as the case might be. The Association has sent the bee-tent to, and given prizes at, the local flower-shows. The show of honey in connexion with the Cambridgeshire and Isle of Ely Agricultural Society's Show at Cambridge last year was quite a success. What is wanted now is a good local expert. *Cannot the Committee of the B. B. K. A. assist in unearthing one at least?* If it were generally known that the expert of the Association would visit each member twice a-year, I believe most of those who have now withdrawn from the Association would be induced to join again, and many others would become members. If cottagers pay a subscription of *2s. 6d.* a-year, they expect an equivalent, or even something of greater value, in return. The hon. secretary and some members of the Committee have acted as experts in visiting members in their immediate neighbourhood, but men in the profession or in business cannot devote much time to that kind of thing. I trust something will come of this move.—JAMES HEDDING, *late Member of the Committee, Cambs. and I. of E. B. K. A., Sawston, near Cambridge, April* 22.

[We must remind our correspondent that the Cambridgeshire Association has withdrawn from affiliation with the B. B. K. A.—ED.]

In the last issue of this Journal Mr. Dann complains that he always fails 'to see any account of our own

county Association.' Because the Association does not publish all its doings, it does not follow that no work is done. Real merit is often modest. I cannot help thinking Mr. Dann is a little hard in his remarks, as well as a little incorrect.

In the first place, the Association was only formed in November, 1881, so that it really has only been in existence for three seasons, and during that time the Society has suffered very considerably from change of officers. The original founder and promoter was the first secretary, and he, unfortunately for us, fortunately for himself, obtained preferment in the Church, and left the district, so that during the second season we had to put up with a secretary who knew nothing whatever about the work, and only took the position because no one else was willing to do so, and to prevent the Society collapsing altogether. But at the end of his year of office the Association was so fortunate as to secure the services of a gentleman in every way capable of fulfilling the duties of secretary, and he has already (notwithstanding the ill-concealed editorial sneer) placed the Society on a 'sound basis.'

The first duty of any Society is to pay its debts, and it is partly for that reason that we have declined to be represented at Wisbech, and partly because we are anxious to get enough money in hand to employ an expert. The Association has been represented at many Agricultural as well as Horticultural Shows, and it is believed that little good has been done at them in forwarding the objects of the Association, which is 'the encouragement, improvement, and advancement of bee-culture, *particularly as a means of bettering the condition of the agricultural and other labouring classes.*'

We find at these shows that it is next to impossible to get the agricultural and labouring classes to take any interest in bee-keeping at all, and the persons who patronise the bee-tent are either those of the wealthier class or those who already keep bees on the advanced system, and probably know as much if not more than the expert himself.

It has been considered that the risk of attending with the tent at Wisbech was a very great one, and that we should probably lose considerably by the undertaking, without doing any great amount of good, and we have therefore abandoned it. At the same time there is no reason why Mr. Dann, or any other equally energetic and public-spirited person, should not get up a Bee Show at Wisbech on his own account; and I am sure our Association will wish him every success; nay, more than that, I understand from the Secretary that an offer has been made to let Mr. Dann (although he is no longer a member of the Association, having only subscribed for one year,) have the use of the bee tent free of cost. With regard to the Editorial note, I can quite understand the B. B. K. A. would like to see another Association formed in Cambridge. It is because the present Association thinks less of the honour of being affiliated to the parent society than of the annual expenditure of 5*l.* or 6*l.* which that distinguished alliance entails, that we find the Editor talking about 'inactivity,' and 'a firmer basis.' (To save him the trouble of another Editorial note I will take it for granted that he denies this.) The privilege of being affiliated used to cost us at least 5*l.* a-year, which was one-fourth of our whole income, and in return we got absolutely no advantage whatever. The only time we asked for assistance last year, viz., to find a market for the sale of our honey, we got no aid at all; and consequently we came to the conclusion, and I still think rightly, that in our case, at any rate, the affiliation scheme is only an expense for which we receive no corresponding advantage. I quite agree, however, with Mr. Dann, that we want an expert. Hitherto we have not been in a position to afford one, but now there seems some prospect of such a contingency. A meeting has already been called to consider the matter.—JOHN E. LEDSAM WHITEHEAD, *Cambridge*, 24 *April*, 1885.

[We must certainly deny that affiliation to the B. B. K. A. need entail any such expense upon a county association as 5*l.* or 6*l.* The only expense which need be incurred is the affiliation-fee of one guinea per annum, and a sum not exceeding ten shillings for supplying certain copies of the Annual Reports and balance-sheets, which no well-managed Association should wish to withhold from its members.—ED.]

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

Would you allow me space in the *Journal* to call attention to the state of the Association which has so long been established in Lincolnshire? Why is it that for years no report has been issued, if indeed there have during that time been any general meetings?

About twelve months ago a correspondent complained of this state of things, and soon afterwards one or more prominent apiarians defended the Association and its work; but I ask, if the Lincolnshire Association is simply to benefit the large producer, is it accomplishing the object for which it was formed? for certainly the mass of the people in the county are not aware of its existence. Apparently little else but the annual honey-fair at Grantham, and the show in connexion with the Agricultural Society, is achieved by it: and can any one—much less the cottager—be expected to support an Association, from which—by so doing—he can obtain no practical advantages?—JUSTITIA.

HONEY FAIRS AND HONEY COMPANIES.

Notwithstanding the editorial remarks appended to Mr. Godfrey's letter I cannot help concurring in the opinions expressed by Mr. Godfrey and sympathising with the object he so warmly advocates.

The principal object of the British Bee-keepers' Association is to benefit cottagers and labourers, all, in fact, who by their industry, desire to increase their small incomes by bee-keeping; but the promotion of honey companies must prejudice their interests if the price of honey is thereby reduced, and that this must follow appears to be generally admitted. Nor do I think honey companies will benefit the cottager in disposing of his honey. He can but seldom have little more to dispose of than he can sell at home, and the trouble and expense of packing his small surplus, the risk and cost of carriage, &c., would deter him from sending it to London.

The conditions of the production of honey, and of poultry and eggs by the cottager, are very similar. A few bees and fowls can be kept profitably, but not in either case in any quantity. But if the price of honey is to be reduced much below its present value, I feel sure it will not be worth the time and trouble to produce more than he requires for his own use, and that the interest of the Companies, which may possibly benefit large producers, and the excellent object of the Association, must necessarily clash.—W.

THE FUTURE PROSPECTS OF BEE-KEEPING.

Being a member of the Sussex B. K. A., and a subscriber to the *Journal*, I find, in reading the correspondence, there is a great difference in opinion as to the future price of honey. I, for one, quite agree with Mr. Godfrey's letter. It is quite true they who wear tight shoes only know where they pinch. I was given to understand, when I became a member of the Association, that it was for the benefit of the poor and working class at large; and coming under that heading, I feel sure that the proposed price of honey will not benefit the working class, but quite the reverse: as, instead of getting out of

the hole by the assistance of bee-keeping, they will get deeper into the mire. I entered into bee-keeping with all my heart, hoping thereby to gain some of the benefits, but I am afraid, if such a price is coming to pass we read of, we must pull up, the signal being against us; for, instead of promoting bee-keeping amongst us, it is enough to cause a collision between its members. If I am allowed to express my opinion, it looks like a self-interested affair for the welfare of certain classes of people in the trade, and for the benefit of shareholders of the Honey Company. All our books on modern bee-keeping give us a great show of success, persuading people to keep bees on the modern system; it will be only running them on the wrong line, spending their hard-earned money in following the advice, and then to find disappointment and trouble as their reward for their industry. It is not as if we could reckon on our chickens before they are hatched, but in a climate like ours, we often get deceived; instead of tons of honey we read about, I fear with the best of management it only amounts to some few pounds, on an average, in some poor districts, besides having to contend with other losses. If the price does come to pass we read about, I am certain that instead of helping us to pay our doctor's bill and shoe the family, as we read about, I fear we shall see more bare feet than new shoes; so I think we had better pull up at the distant signal before it is too late to avoid the collision, if things are going on like this.—A Railway Porter.

[Many honey-producers, even during the short time that has elapsed since the Honey Company commenced its operations, have reaped the advantages of the undertaking; and as time advances many others will continue to do the same. We hope our correspondents will in due time see good reasons to change their opinions, and in the meantime we would advise them not to cross the bridge till they have come to it. We append the opinions of some other correspondents: C. D. O. writes:—'Success to the much-needed undertaking.' H. E. R.: 'It's quite time the Company was started, so that we shall be sure of the money.' W. B.: 'It will be a boon to have a dependible market for our surplus produce.' Joseph Cook:—'With regard to the Honey Company I have no doubt but Mr. Godfrey's plan is a very good one where it can be carried out properly, but there are not many counties that are favoured with a Godfrey, and consequently but little hopes of success, and I think the Honey Company is the best and safest alternative to take, and bee-keepers are deeply indebted to the Directors for their energy and perseverance in establishing the said Company, and I hope that they will be well supported in their enterprise.']

NATIONAL UNION OF BEE-KEEPERS.

I fail to find in your columns any list of the promoters of the so-called 'National' Bee-keepers' Union. This tends to confirm my suspicions that the promoters are too insignificant to wish their names to be published. I am further inclined to think that this Union is an union of two persons, Messrs. Hewitt and Thomson. At least, all that we can learn about the matter is that Hewitt draws up a set of rules, and that Thomson expresses his approval of them. It looks like a game of see-saw. No one else seems to trouble to express any opinion about the matter at all.—A Reader of both Journals.

BEE-HIVE HALL.

(Not by Lord Tennyson.)

Often in the early morning, ere I went to sleep,
Have I seen the busy workers from their bee-hives creep.

Often have I seen the drone bees issue with a buzzing noise,
Quite oblivious of their future, like a pack of merry boys.

Often have I seen the queen-bee, followed by the worke bees,
Settle in the swarming season, on the tops of lofty trees.

In the spring the mother bee queen wakens from her winter's rest,
In the spring, her foe, the tomtit, makes herself another nest.

In the spring a glorious beauty blazons all the golden palms,
In the spring, the bee-man's fancy lightly turns to thoughts of swarms.

Oh my bee-hives, phenolated! oh my foul-brood, mine no more!
Oh the cheap and nasty bee-hive, with its warped and shrunken floor!

As the queen is, so the drone is; gold queen mated with the brown;
All the workers will be hybrids; but the drones are all her own.

Often in the *Journal's* pages, have I read the wails of woe,
Uttered by despairing sellers, when there was no Honey Co.!

And have read what guileless Godfrey, writing with a flowing pen,
Talks of honey fairs and markets, and of prices pennies ten,

For the bright and liquid honey, but for honey in the comb,
Dainties put in two-pound sections, we should get a half-a-crown.

And have read what sanguine Seager, with a joyous heart and free,
Prophesies that in the future honey will be pennies three.

Threepence! tenpence! is there never for us yet a price between?
But I hold the truest value is the Godfrey-Seager mean.

Foolish then to keep the straw-skeps, when the bee world is alive:
For I hold the ancient straw-skep lower than the bar-frame hive!

And 'twere best to sell our honey, though the prices low may fall;
Better fifty pounds at sixpence, than to get none in at all!

Reviews.

The Honey Bee.* By Dr. Stroud.—This essay is written by Dr. Stroud, a well-known African bee-master, and is a very valuable contribution to our bee-literature, and one which will well bear perusal by all bee-keepers, as it contains in very clear and lucid language the various ideas held by different authorities on the economy of the hive bee. With respect to various deductions drawn by Dr. Stroud, we hold that he places the bee too high in the scale of intelligence, and that the bee has learnt anything by the experience of the others, we consider is not all borne out by well-known facts with regard to their life history. We deny his premises, and also his conclusions. For instance, we quote his words: 'That the bee is a creature of "intelligence," and not solely governed by instinct, no bee-keeper, I imagine, can question.' We, for our part, deny that the bee has any intelligence, properly so called. Where instinct ends and intelligence, by which we mean a reasoning faculty, begins, is always a difficult point to decide. Doubtless,

* *The Transactions of the Eastern Province (South Africa) Naturalist's Society.* Part I.—'The Honey Bee (*Apis mellifica*). Its Natural History and Management. By J. W. Stroud, M.D., Port Elizabeth, Cape Colony.'

in some cases, bees seem to cross the boundary line, but the instances which Dr. Stroud adduces fail completely to establish the evolution theory.

If Dr. Stroud will make a glass observatory hive, and will allow more than the traditional ⅛ in., so as to tempt the bees to build a spine of comb on the glass, and watch carefully the formation of the cells by the bees, he will see for himself that the cells are not built hexagonal, with a tri-rhombic base, but that the original form is cylindrical, with a hemispherical base, and that these are changed by pressure into the hexagonal cells. No doubt, economy is one of the great laws of the hive, but if the bees were such perfect economists and geometricians, the side of one cell would act as the side of the next, a party wall, in fact, whereas each cell has its own walls, and between it and the adjoining cells spaces are left, which can be easily detected by the microscope. At the edges of the combs, and also in the the queen-cells, this pressure does not exist, or only in part, and as a result the cells approach more or less to the cylindrical form. Again, we differ as to the question of the varieties of the eggs which the queen lays. It has been proved over and over again that the unfecundated queen can only lay drone eggs, and that even when fecundated, unless the egg in its passage down the egg-duct comes in contact with the male entozoon, it will only produce a drone. Again, when our author says the fate of the drone consort is a mystery, we would ask him to solve his doubts by examining carefully a princess after her nuptial flight. Drone eggs are constantly laid in worker-cells, and worker-eggs in drone-cells, which is sufficient to disprove the theory that reflex action, the refuge of the destitute, determines the sex.

With the practical part of the essay we are more at one with the author, though we prefer Mr. Cowan's plan of queen-rearing to that advocated by Dr. Stroud. As we have been promised specimens of the African bee, of which there are three kinds, a black, a yellow, and a mixed variety, we will defer our description of them to a future number, though they seem to correspond with our common black bee, the Ligurian, and the hybrid between these two.—G. WALKER, *Wimbledon.*

THE APPARATUS FOR DIFFERENTIATING THE SEXES IN BEES AND WASPS: An Anatomical Investigation into the Structure of the Receptaculum Seminis and Adjacent Parts. By Frank R. Cheshire, F.R.M.S.—This paper is based on a most minute microscopical investigation, requiring such instruments, care, and dexterity that perhaps few will endeavour to see for themselves the minuter structures which Mr. Cheshire has so well described and figured. Yet Mr. Cheshire has not confined himself to dry anatomical details; indeed, his chief objects seem to be to discover how the spermatozoa pass from the drone when the young queen is impregnated into that small spherical bag, the spermatheca, in which they are stored until wanted, and how it is they are transferred with such beautiful regularity from this to the worker-eggs as they pass along the oviduct beneath.

Mr. Cheshire has discovered a channel the upper end of which communicates with the spermathecal duct, whilst its lower end becomes lost in the lower part of the oviduct. He regards this as the remains of what was in the young queen, an open passage, allowing the spermatozoa to enter, but which later on becomes closed. Since, however, he seems not yet to have seen the channel open, it will be better for us to reserve our judgment until the few weeks have elapsed which will enable him to obtain young queens, and complete these important observations.

The mechanism which appears to regulate the passage of the spermatozoa out of the spermatheca is very clearly described and indicated in an accompanying drawing; and though it seems abundantly supplied with muscles and nerves, it is not to this that Mr. Cheshire attributes the function of withholding spermatozoa from drone-eggs whilst supplying them to worker-eggs.

The paper will be read with special interest by those who have ever taken the trouble to dissect the abdomen of a queen. The freedom with which Mr. Cheshire endeavours to explain the action and uses of the structures he describes, although it renders it likely that he will before long modify some of his explanations, yet it makes his paper the more instructive to those who remember always to distinguish between observations and the inferences drawn from them.

LECTURE ON BEES AND BEE-KEEPING.—Delivered by Mr. W. Crisp, F.S.Sc., at Ormesby, Middlesbrough. Edward Kirby, Chairman to the Local Board, presided. The lecture was illustrated by splendid limelight and a set of sixty slides, under the able management of Mr. S. Groves. Mr. Crisp, in introducing his subject, said that doubtless many of his audience would be familiar with that beautiful hymn of Dr. Watts, commencing, 'How doth the busy bee?' This, said the lecturer, was his first lesson in bee-keeping; and his next was as a small boy catching the bees and dissecting them to find their honey-sac, which, when well filled, was about the size of a pea. By-and-by he found that some bees had no honey-sac, and also no stings, and that those bees (drones) could be caught and handled with impunity. After further advance in knowledge, he found that the beautiful hymn of Dr. Watts was not literally correct, and that 'the bee did not gather honey all the day,' but more especially in the early morning, and when tired took its period of rest and amusement, and that it was no uncommon thing to see many basking in the sun upon their alighting-board the whole of an afternoon after a hard morning's work. Alluding to the varieties of the bee, the first view on the screen showed illustrations of the humble bee, the mason bee, and others. The lecturer dwelt upon the great importance of the humble-bee in fertilising our red clover, and upon the usefulness of our honey-bee in securing us a good crop of fruit. As an illustration, at his old home they had a three-acre garden well stocked with berry bushes, and for several years other gardeners used to ask how such good crops of fruit were secured. He replied, The bees. By-and-by, when he left the old home and started a new one, he took the whole of the bees with him. No other bees were kept at that time in the district. And mark the result. They have now cleared off the whole of the berry-bushes because they never had a crop. Then as an additional proof, in the town he moved to his neighbour complained of never having had a good crop of gooseberries. He mentioned the bees. His neighbour was doubtful, but the following seasons he had an enormous crop. He then showed how the bee was the unconscious agent in the act of fertilisation, evidently showing the wisdom of an All-wise Creator in adapting simple insects to carry out His will in the design of nature. Mr. Crisp then came to his subject proper, and described the various slides and mysteries of the interior of the bee-hive, interspersing them with several numerous anecdotes, which kept his audience in the closest attention for above two hours. Several views of bee-farmers—Huber and Abbott, Neighbour's bee-farm, Baldwin's ditto, and many others, were exhibited as proof of the rapid strides bee-keeping was making; not the least being a view of his own apiary, and another view, Mr. Dixon's hive manufactory at Great Ayton, with specimens of that gentleman's work kindly lent for the occasion. Mr. Crisp recommended them all to keep a hive of bees, if only for a hobby and an amusement, as it would be a most interesting study, and keep them employed, and pay well for the attention given to it. Then followed quotations of successful bee-keeping from the *British Bee Journal*, Mr. Crisp concluding with a quaint wish that in the coming Parliament there might be more workers and fewer drones in its constitution. As we bee-keepers suppress the breeding of drones by

using nothing but worker foundation, the new electors had it in their power to suppress the drones in parliament. Votes of thanks concluded a pleasant evening. Another invitation to lecture was declined until the winter months, when Mr. Crisp would have more time at his disposal.

Lecture on Bees.—On Friday, March 27th, Mr. W. N. Griffin, Hon. Sec. of the Devon and Exeter B. K. A., delivered a most instructive lecture to the members of the Debating Club of the Weymouth Town Society, Mr. Grooves in the chair. He explained the anatomy of the bee, the relation of bees to flowers, and scientific apiculture. The lecturer also pointed out the great benefit arising from supporting the various societies, and advised all his hearers to at once enrol themselves as members of the Dorsetshire Bee-keepers' Association.

A Bee Hunt in a Hungarian Forest.—Having read an account of how the natives of Australia carry on hunting the bees, I should like to give a few words about my own experience. I learnt the art of hunting bees from watching an old countryman, who appears to be a great bee-keeper, although he still belongs to the 'old school,' and kills his bees with sulphur. Notwithstanding this he possesses a great number of stocks and manages to get a living by them. It is estimated that he possesses from eighty to one hundred and twenty stocks, though it is not known for certain. He seems to believe that his 'bee luck' lies in a magic power belonging to his own person, and that he should lose it if he was to talk about it.

The news having been brought me that the old man had gone in the forest to hunt, I resolved to follow him and find out his method. From afar off I noticed that by the aid of a flute or stick he seemed to be attracting the bees to him, and that he would afterwards note their flight homewards. Wishing to try the experiment myself, one afternoon I sallied out, cut a stick from a lilac-bush, cleared out the pith, and cut four small holes in it, just as if I intended to make a flute. This I filled with run honey, closed both ends, and then started for the forest. Having arrived there I brought out my flute and got as near as possible to some bees, until at last I attracted the attention of one which alighted on it. After having sucked the honey the bee flew away, but in about ten minutes returned with three companions; and from that time it began to get lively, and I had sometimes as many as twenty bees on my flute. I now altered my standing point, at the same time marching in the direction the bees were flying, and thus managed to come, in one day, by altering the direction of my way, to two stocks; but both being out of my reach, in a high stump of a tree, I was obliged to give up getting them. I was more successful another time I started out, for I succeeded in capturing two strong stocks, full of comb.

I might here mention that if anybody who is afraid of being stung will rub his face, neck, and hands, with feather-alum, the bees will never touch him.—*Blätter für Bienenzucht.*

Rules for Raising Plants for Honey Only.—1. Plants must be grown on large areas of ground, not simply on small patches. 2. Either barren or very low-priced land must be used, as the results will not pay the rental of valuable farm land for this purpose. 3. Plants must be selected that will reseed themselves year after year. 4. They must also be plants that will retain possession of the ground on which they are grown, to the almost entire exclusion of other vegetation year after year without annual cultivation. 5. Plants used for this purpose should not be very troublesome weeds, especially if liable to spread on neighbouring farms.—O. O. Poppleton, *Iowa* (*American Bee Journal*).

List of Articles wherein British Honey is used.—Honey drops, honey chocolate, tablets, and creams, honey nectar, lemonade, and other beverages (non-alcoholic), honey confectionery, various kinds, honey linctus for coughs, honey medicines, salve, pomade, hair stimulant, tooth-paste, honey lozenges, cough lozenges, barley sticks, raspberry drops, &c., jujubes, honey cattle-medicine, fish-bait, vinegar.—*Berkshire Bee-keepers' Association Annual Report.*

Honey and Wax Crop of America.—Mr. T. G. Newman states that the honey crop of America in 1884 is estimated to be worth sixty millions of dollars (one-third of it being in the comb and two-thirds extracted). The wax product amounts to one million of dollars.

Extraordinary Increase in a Ligurian Hive.—The rapid increase of stocks of Ligurians has frequently been commented upon, but I expect few of your readers have known a stock increase so rapidly as occurred in one of my hives last Friday. The hive in question is a twin-hive of Abbott's make, oblong pattern with large entrance, and is tenanted by a strong colony of Ligurians, and on Saturday I found one of the cats had taken up her quarters in this hive with the bees, and had given birth to three kittens, which were comfortably domiciled on the quilting above the frames. The cat goes to and fro, taking no notice whatever of the bees, although cat and bees have but one common entrance and exit; she goes alike when they are busiest and quiet.—J. W. M., *Feering, Kelvedon.*

Weymouth Industrial Exhibition.—At this Exhibition, held at St. Mary's Schoolroom, Weymouth, on 6th April, we notice that a bronze medal was awarded to Mr. W. N. Griffin, late of Exeter, for an interesting collection of different kinds of honey and wax.

Estimate of the Honey Business of Southern California.—Number of bee-keepers, 1000; colonies of bees, 100,000; amount of honey to the colony, 200 lbs., or in all, 10,000 tons. The wax amounts to 5 lbs. to the colony, which makes the product amount to 500,000 lbs.; at the market value of 25 cents per lb., we have the snug sum of $125,000 for the wax alone. The quality of this honey and wax equals any in the world, not excepting the honey product of the islands of Crete and Minorca; and the time is not far distant when the gorges and canyons of Southern California, which abound in honey-producing plants, will become the homes of a happy and prosperous population engaged in the honey industry.—*From a paper read by Mr. J. E. Pleasants, at the Bee Congress at New Orleans.*

Echoes from the Hives.

Chester, April 21.—Bees seem to have wintered well in this district, there have been very few 'bee days' this spring prior to Thursday last, when we had a heavy fall of snow, since then the weather has been very good, honey coming in freely.—Chas. Roberts.

Fairford, April 21.—We are having beautiful weather the last few days, after two weeks of cold east winds and frosty nights. The temperature on the 17th was 62°, on the 18th 63°, on the 19th 70°, on the 20th 69°, and to-day 71°. I have been the means of about fifty bar-frame hives being started in my district, and twenty-two of them were stocked last spring and autumn, most of which I have examined lately and found all but two in a very prosperous condition; but I am sorry to say that there are still many bee-keepers who are so attached to the sulphur-pit that I cannot convince them of the evil of it, but I hope that when they are brought to see the benefit of the bar-frame hive that they will be induced to leave it off.—Joseph Cook.

Allonby, Cumberland, April 23.—This is not what you would call a good place for bees, as we are close by the sea, and without any trees and very little fruit of any kind; the white clover is generally very plentiful, and if

the season be fine we get a good harvest then, but it requires a good deal of stimulating in the spring to get them strong and ready for the clover. We have also heather about a mile off, but I have never been able to profit much from it, although some store is gathered for winter use. Our Association in this county is progressing steadily, and I hope if we have a good season to see the number of members greatly increased. I am glad to hear from our secretary that we are to have Mr. Sissons in this county for a week to give lectures.—J. W.

Hunts, Somersham, April 24.—For just a week the weather has been splendid, making us almost forget the previous part of the month, most of which, particularly Easter week, was cold, dull, and wet. Stocks are now progressing favourably, and honey is coming in fast. The stock in my Anglo-Cyprian hive is working busily in one crate of 18 1-lb. sections, and several more stocks, if I were working for honey, might at once be supered. Stocks generally are becoming populous, but not a drone has been seen yet. As one of the district advisers of our Association I have examined over 100 stocks, and am pleased to be able to report favourably on nearly all.—C. N. White, *Hon. Sec. Hunts B. K. A.*

North Leicestershire, April 24.—Nine fine days in succession have given the bees a good opportunity to go out foraging. They have carried in abundance of pollen, but very little else. The winds have been very dry, and although the temperature has been very high at times, nectar has continued scarce. Some stocks seem to be making fair progress, but as a rule the others are weaker than they were a month ago. Gooseberries, currants, and plums, are just coming into bloom, so that another week of fine weather may bring about a more favourable state of affairs in the bee-world.—E. B.

Sutton, Surrey, April 25.—The past fortnight has been grand weather for the bees, and honey has been so plentiful (chiefly from gooseberries, wallflowers, and arabis), that their syrup has been mostly neglected. Out of my twenty-six stocks only five are at all unsatisfactory (probably having old queens), while some have eggs on all frames, even on the outside comb opposite to the dummy, though I should mention that they are crowded on to five or six frames except in a few cases. It was decided, two months ago, at a meeting of local bee-keepers, to form a centre of the Surrey Bee-keepers' Association in the neighbourhood. The Secretary informs me that he has already received seventy subscriptions.—A Poor Buzz Buzz.

Leamington, Honey Cott, Weston, April 27.—Glorious weather now, bees revelling on the palm, plum blossoms, blackthorn, dandelions, &c. The weather has been all that could be desired, with the exception of Saturday and yesterday, when the wind was very rough. Appearances at present point to a good honey season, which no doubt we all hope will not be disappointed.—John Walton.

East Gloucester.—We are having splendid weather for bees after a cold three weeks, and they seem all in a capital strong condition. I began feeding on March 20 with dry sugar, it answers well and saves no end of attention. I think Mr. Simmins has conferred a great help to all bee-keepers by his invention. On page 137 I see the red-hot-poker is mentioned by Mr. Warden as a good bee plant. I have also noticed bees work on it, and what a grand plant it is in any garden. Aquilegia vulgaris will grow anywhere. Rabbits do not touch it. Grape hyacinths are pretty little bulbs, and bees are very fond of them. In January we had 3·18, in February 4·68, in November 2·42, and this month up to 20th 2·0 of rain. We are 800 feet above the sea level.—A. W. L.

Norwich.—My bees are busily engaged collecting honey from the myrobella plum, they have gathered honey lately from this shrub far in excess of breeding requirements, although brood-rearing is progressing rapidly; in fact, in two or three hives I have had to add frames (empty), as honey was stored at the expense of brood nest.—Hy. Dobbie.

Bray, Ireland, April 18.—This has been a most unusually late spring, fruit trees not yet in flower, except a few gooseberries. Bees have, however, wintered well and increase fast. I examined a few days ago five flat-topped skeps which were left all the winter with the top hole open, the rain being kept off by a loose zinc cover. The bees have wintered well, and are as strong as any I have seen this year. How does this agree with Mr. Simmins' plan of covering the hives with American cloth to keep in the damp? If sealed honey-combs be examined at this time of year, in the middle of the day, in a strong hive, it will be found that they are covered with condensed moisture, which is caused by the great increase of temperature in the middle of the day. If this happens without American cloth the bees must, as one of your correspondents says, be almost in a Turkish bath when it is used.—E. D'O.

Ballinacurra, near Cork, April 19.—Bees were much retarded by a cold, harsh March, with frost nearly every night, the same holds good of April up to about 15th. I introduced queens into two queenless hives this year on Simmins' plan, with perfect success. Bee-keepers are much indebted to him for making known to all so easy a method, and should acknowledge it.—J. J. S.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Staphylia.—Staphylia trifoliata, or more properly S. trifolia, is an ornamental flowering shrub, and succeeds well in this country, where it flowers in April and May. We do not know it as a bee-plant, but should think it would be worth cultivating for bee-forage; the blooms are white and pendulous, about the size of a hawthorn flower, but more permanent; that is, they do not fall so soon, each individual flower will last a week or so in full vigour. The species of Staphylia are known commonly as bladder-nuts on account of their bladder-like pericarps. We have a Staphylia (S. pinnata), a member of our British Flora, though by some botanists considered as a doubtful species.

Novice.—1. *Pollen of various Colours.*—This is caused by different bees visiting different species of plants; both the yellow and the slate-coloured are pollen, the latter probably from gooseberry-trees. 2. *Ventilation by Bees.*—This is quite natural, and does not call for any interference on your part. Your method of packing is quite right for the present season. 3. *Water on Flight-board.*—The 'yesterday,' according to the date of your letter, was in London wet, and the moisture might arise from leakage from the roof, if so attend to it at once. Any water gaining access to a hive is detrimental.

C. B. Spring.—*Swarming.*—You can easily see when your bees are ready or preparing to swarm, and then you may artificially swarm them as described in most bee-books. You can either do this on your day of leisure, or even in the morning or evening of any day, although the midday is most suitable.

H. B.—1. *Feeding extracted Honey.*—You can give it in a feeder behind the dividers, and if you give them no room in the stock hive they will stow it in your sections. 2. *Number of Frames for a good Queen.*—It depends upon season and other circumstances. Ten standard frames are generally quite enough.

W. W. F.—1. *Replacing Queen.*—Your proposed plan would be difficult of performance, and very likely to fail. A better plan would be to remove the old queen and to give—from a hive that has just swarmed—a frame of brood, bees, and one or two sealed queen-cells, covered by pipe-cover cages. On the hatching of the queens, if there be two, release one and give the other

to a nucleus to be fertilised and held in reserve. The young queens *may* be fecundated by any drones within *six miles* of your apiary, unless you follow some artificial system, such as the *Kohler process*, for procuring fecundation by selected drones. 2. *Foundation.*—It is best to melt down the strip of foundation. Bees never work well on patchwork.

J. W. Batchelor.—1. *Transferring.*—It is late for transferring. Strong colonies in skeps are too near swarming to allow of successful transferring. Either allow them to swarm naturally, or take artificial swarms. Twenty-one days afterwards transfer combs and bees from the skeps to frame-hives. 2. *Drones.*—The appearance of drones is the prelude to swarming. It is also a mark of strong and healthy colonies.

G. H. C.—*Flour-cake.*—More flour should have been stirred into the cake, until you had arrived at the proper consistency. It would have been better to have removed the residue, and supplied fresh cake. It was not the cake that killed the bees. They were clogged, and suffocated, in the liquid honey which you poured upon the meal. This was bad policy. When liquid food is given thus it should always be covered by a float.

A. B.—1. *Balling the Queen.*—This generally leads to her death unless she is speedily rescued. 2. *Queen.*—Yes, she has a sting, but seldom uses it except to sting a rival queen. We were once stung on the lip by a queen which we were holding between the lips to give both hands liberty. The effects were very slight as compared with those of the sting of a worker. 3. *Placing of Supers.*—We prefer them to run the same way as the frames, but it is not of very great importance, but more a question of convenience.

J. F. M.—*Mead Wine.*—There have been numerous recipes for making mead in previous numbers of the *Journal*. We reprint that given by Mr. E. Thompson, of Brigg:—To every gallon of water put 4½ lbs. of honey, to which add 1 oz. of ginger, in pieces, and 1 oz. of hops, tied in a bag, to about 5 or 6 gallons. Boil and skim it an hour. Let it stand till cold, then put it into casks, with a pint of brandy to every 6 gallons. N.B.—No yeast must touch it.

Marcus J. Astle.—*Two-year old Queens.*—Mr. Cowan in his *Guide-Book* advocates queen-rearing in spring. Such queens would have the whole of the first summer of their existence for work, and would be at their best as regards laying powers the second year. Mr. Cowan usually deposes all queens at the end of this second year, and replaces them by young queens, unless they have some particularly good qualities to induce him to keep them for a third year to breed from. Your queens, being bred so late as July, would have done no work the first year, could therefore be kept over until the third year if they prove to be good during their second year.

A. C.—1. *Skep in doubtful Condition.*—If your bees carry in pollen freely you may feel pretty sure that they are not queenless, although even in that case they would carry some. Leave them alone for the present, taking care they are not robbed by a stronger lot. When the season is more advanced you can drive and transfer to a bar-frame hive, and destroy any combs which you may find infested with moth. 2. *Hives with eight Frames.*—Although they are rather small, yet very good results have been obtained from stocks filling eight frames well. If expense is no object use larger ones.

C. M.—1. *Two tiers of Sections in use.*—Let both run the same way, and both the same way as the frames in the stock hive. 2. *Waxed Quilt.*—Lay the waxed side next the frames. Put some warm material over it. It is absolutely necessary that the heat should be retained in the hive now brood is being raised.

Cottager.—*Bees visiting Oyster-shells.*—They probably went there for moisture, and also for salt. No harm will arise.

M. Hatfield.—*Hive which has been washed with Nitric Acid.*—We should recommend you not to use it for bees while any smell of acid remains. Expose it freely to the sun and air.

W. Slinger.—*Bacilli.*—The bees I find contain a large number of small bacilli (probably *Gayloni*). The disease is certainly not *Bacillus alvei*, and the attack will, I imagine, pass away as the summer advances. This has always happened with hives similarly suffering, and which have up to the present been brought under my notice. If any change for the worse arises a further communication respecting it would be desirable.—F. C.

C. Roberts.—*Enamel Cloth.*—Your premise is incorrect. The moisture condensed inside a hive is no more the perspiration of the bees than is the moisture on a window-pane the perspiration of the occupants of the room. Even if it were we do not see the force of your objection. On any fine day in spring you may witness bees eagerly imbibing the drainage from farmyard manure, or from other offensive sources; we do not see, therefore, that your contention has any bearing upon the subject. Again, we do not believe that Mr. Cowan's remarks were intended to apply beyond the early spring; neither do we advise to discard the winter cushions or quilts before the middle or end of April, when the population of the hive begins most rapidly to increase. It is an established fact in bee-keeping that upward ventilation is not only not required, but is injurious during the summer months. The greatest American authority says, 'We cover the frames with a thin, tough sheet of enamel-cloth in summer, and lay the quilt on this.' There is scarcely an advanced transatlantic apiarist who does not use the enamel sheet. Before the quilt came into general use the old-fashioned, tightly screwed down crown-board, propolised beneath, answered much the same purpose as the enamel sheet, and bees throve under these conditions, at least during summer. We believe also that at spring winter quilts and chaff cushions are now almost universally discarded, or they would become a harbour for moths and other noxious insects, as well as admitting of injurious ventilation. Mr. Cheshire, in his *Practical Bee-keeping*, which we strongly recommend you to read, remarks on page 98, 'Summer ventilation other than that through the hive mouth is not only unnecessary, but prejudicial,' and he gives his reasons fully. We are therefore introducing no novelty in recommending the use of enamel-cloth, the benefits of which we have proved by long experience. The matter is a very simple one, which anyone may investigate for himself by actual proof; and we recommend you to try the experiment with two equally populous colonies, under equal conditions—one covered with ventilating material, the other, according to our instructions, with enamel-cloth, and quilt and crown-board above—and we have no doubt as to the result.

R. P.—*Diseased Queens.*—I fully believe that the perforations of the diseased cells are made by the bees. They have the habit of biting off the mixed wax and pollen covering from queen-cells, and can be made to do the same from drone-cells by causing in any way the death of the contained grubs (see explanatory text to my Diagrams). Gas cannot produce the openings, as the covers are pervious to the air in every part.—F. C.

Humble Bee infested with Insects.—The bee forwarded is *Bombus lapidarius*, and carries upon its body a number of small parasites, but this is by no means unusual. It would indeed be difficult to find a bombus which is not the host of several mites (*acari*). These small creatures have, however, such quickness,

and so hide themselves between the hairs of the thorax and about the insertion of the legs that without patient hunting they pass altogether unnoticed.—F. C.

A. P. Collyer.—*Parts of Bees.*—The supposed combs found on the floor-board are simply the remains of dead bees. The external skeleton has been emptied of every vestige of tissue (flesh, &c.), probably by tiny mites or acari, many of which are not unfrequently found in inaccessible nooks in bee-hives. The bees resuming work in earnest have, during the customary 'spring cleaning,' turned out the corners, with the result that has attracted your attention. It is, happily, in this case, a good sign rather than an evil omen.—F. C.

J. Hewitt.—*Bee-keepers' Union.*—We have decided not to publish the letter you have forwarded to us. We reserve to ourselves the full right to publish or refuse any letters and articles that may be sent to us, more especially when we are threatened that if we do not accept them they will be published elsewhere. If you wish to advertise the Bee-keepers' Union you can do so in the ordinary way by using our advertisement columns. At present we know nothing about the Union, the promoters, or the multitude of prominent bee-keepers who are in favour of it, and until we know more about this at present shadowy Union we shall decline to insert any letters on the subject.

G. M. Goldsmith.—*Enamel Cloth.*—We do not believe that the dysentery arose from the use of enamel cloth, but from the transferring, adding brood-combs, &c., in cold and unsuitable weather. We have more than twenty colonies at the present moment, in the most perfect health, and most of them ready for supers, very strong, and free from superabundant moisture, all covered closely with enamel sheets. The sheets we use are American, and are manufactured specially for this purpose, without any deleterious ingredient, or offensive smell. If you have applied the glazed cloth, used for table-covers and other purposes, we cannot answer for the effect. Our frames all range from front to back, and the entrances are kept open their full width. This plan we have followed for several years with perfect success, and have never had a single case of dysentery. (See also our answer to C. Roberts.)

B. H. P.—*Soiled Combs.*—The comb sent contains no traceable disease, but of course the evidence is hardly more than negative, since this sample does not appear to have formed part of the nest at the time the bees died. The soilings do not indicate dysentery (which is a true and distinct disease, and not simply weakness and lowered condition as the result of bad management), but simply show that the bees have been greatly reduced and then much chilled on account of their small numbers. In small lots this soiling is sure to occur during a cold snap. The combs for anything discoverable may be quite well used in other hives.—F. C.

F. W.—The comb sent was badly diseased with *Bacillus alvei* (foul brood), and although a fortnight since you did not observe anything unusual, it is quite certain that then the disease was established. The similarly affected stock to which you refer is doubtless in the same plight, and remedial measures should be taken without delay. For methods of treatment consult our reply columns and articles on foul brood in back numbers of the *Journal*. It is not needful to remove the other stocks, although it is to be feared that they have not escaped contagion altogether, and a careful examination should be made. The hive was deserted in consequence of the bees becoming weak and dispirited, and allowing themselves to fall a prey to robbers.—F. C.

A Sufferer.—*Treatment of Foul Brood.*—If the bees will accept the medicated syrup from a feeder you need not pour it into the combs. But if they refuse it you must act in accordance with Mr. Cheshire's instructions which accompany the cure. You must continue the treatment so long as you find any of the larvæ are affected. Note Mr. Cheshire's caution as to the disease existing in the queen herself. In that case she must be changed.

A. B. C.—*Feeding and Avoiding Storage of Syrup.*—While the present weather continues your bees will gather sufficient honey to keep themselves going (we presume they are not at the address from whence your letter is dated). If bad weather should occur you must feed to keep up the population, but if you watch them, and do not give too much they will use the food and not store it. If you find they are storing away withhold the supply for a day or two to give them the opportunity of using it up.

Phenol Solution.—See Mr. Cheshire's paper on Foul Brood, p. 262, Vol. XII., of *Bee Journal*, and Cowan's *Guide-book*, fifth edition, p. 153.

Tyro.—Letters on business to Mr. Huckle, others to the Editor as directed. Mr. Simmins' paper on dry-sugar feeding, 'Another Point Gained,' will be found on p. 155 of Vol. XII. of *Bee Journal*; it will give you the information you seek. The speciality of the Anglo-Cyprian hive is based on a sound principle; but we prefer the square.

W. A. C.—Nos. 1 and 4 for syrup, 2 and 3 for dry sugar feeding.

The Anglo-Cyprian Hive.—A correspondent would be pleased to hear, through the pages of the *Bee Journal*, the advantages or otherwise of this hive from any bee-keeper who has had experience of it.

'A. F.' desires us to insert a caution in this number of the *Journal* 'That all inexperienced bee-keepers be quite sure before they part with cash that the dealer from whom they buy queens guarantees safe arrival.'

Mr. F. Cheshire writes:—'Will you aid me in getting surplus queens? You know I want them only for dissecting, and I have made a discovery which perhaps will cause more surprise than anything that has appeared yet. Queens are, however, an essential in the prosecution of the inquiry. Bad-tempered, black, old, and ugly, are all equally useful to me, but they must be alive to be of service. I have solved the question of royal jelly.'

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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

[No. 170. VOL. XIII.] MAY 15, 1885. [PUBLISHED FORTNIGHTLY.]

Editorial, Notices, &c.

THE APRIL QUARTERLY CONFERENCE.

The advantages of having a Central Association were very well shown by the subjects discussed at the meeting on 22nd April. To do any real good in spreading the knowledge of bee-keeping would be very difficult except with the assistance of such an association as the B. B. K. A.; and it is to its powers of organization, and to its general supervision, that we can justly ascribe the progress which has resulted from its labours during the past. We as a nation will not submit to the centralization so common to the Continental nations, but a virtue carried to excess is no longer a virtue, but a vice. A parent Association can carry out work of a general character which would not be in the province of any one County Association.

However much we may be in favour of local self-government we must have some representative body, which has the power to deal with imperial questions; and as this may be taken as an axiom in political matters, so we contend it would be perfectly impossible to make any substantial progress without the various County Associations cordially helping the Parent Society to efficiently carry out its work.

We notice with great regret that one of these, viz., the Cambridgeshire, has withdrawn, owing to the expense. As we pointed out, in the editorial note to Mr. Whitehead's (the Cambridge Secretary) letter, the only expense entailed is a guinea for the affiliation fee, and the cost of forwarding to the Secretary of the B. B. K. A. a certain number of copies of the report and balance-sheet which are issued, or which ought to be issued, annually to its own members. It is, of course, desirable that each County Association should send a representative to the four Quarterly Conferences; but the sending of a representative is an optional matter, not a condition of affiliation, and no expense whatever need be incurred thereby, if representatives, resident in London, are appointed by County Associations, as is done by the Staffordshire and Nottinghamshire Associations. We maintain that Mr. Whitehead's view as to the expense of affiliation is an extremely narrow one, and one which, if generally taken, which fortunately is not the case, would prove most disastrous to British bee-keeping.

We are too apt to forget that it is often impossible to accurately define by a debit and credit account the advantages of affiliation, unless we take into consideration the contingent advantages as well; and the subjects discussed at the Conference show that the latter are not visionary, but real. To begin with, the first subject was the adulteration of honey, and the useful circular which had been issued to the secretaries of County Associations, setting forth the necessary steps to be taken for the prosecution of the vendors. This is essentially a work which could only be done by the parent society, as we could hardly expect one county association to undertake the necessary expense for the benefit of the world at large.

Without agreeing with the cynical remark that the world consists of so many millions of people, mostly fools, we bee-keepers know very well that the general public are very ignorant of the qualities of genuine honey, and considering the large sale of glucose, which is seen in its 'ojous' form too frequently on the counters of grocers, &c., we think that the steps which the B. B. K. A. have taken in this matter well deserves the support of all bee-keepers. We have to educate the people, to show them good honey, and as far as it is in our power to prevent them from buying adulterated honey. We cannot save them from the consequences of their folly, but, at all events, we can clear ourselves of all blame in the matter.

Again, there was another extremely valuable subject of discussion, which was referred to the Educational Committee, that of diffusing the knowledge of bee-keeping by inserting a few chapters on the subject in advanced reading-books, and also of having object-lessons for use in the National Schools. By these means we should be able to impart knowledge of bee-keeping throughout Great Britain. Children are eminently receptive, and most of us in our younger days had a mania for collecting stamps, butterflies, birds' eggs, &c., and next to reading the wondrous adventures of 'Robinson Crusoe,' and the heroes of Captain Mayne Reid's books, no books had greater charms for us than those on natural history.

If we can instil into the minds of the young even the elementary facts about bees, we may take it for granted, that we are going the right way to work to educate our children to become bee-keepers when they grow up.

The Secretary having reported that the bound volume of Reports had been delayed owing to several County Associations having not sent in their reports, despite the conditions of affiliation, which provide that they should be sent in by February 1st, it was considered advisable to draw the attention of all the county secretaries to this clause, so that in future the volumes should be issued as soon after March 1st as possible. The B.B.K.A. would act quite within its powers if it insisted on this rule being strictly carried out, but we think that it were better to use milder means before resorting to sterner measures, and erasing the names of the defaulting counties.

Some people seem to labour under the idea that laws were only made to be broken, quite forgetful of the fact, that in this case their neglect punishes those that have strictly observed the law.

The next subject of discussion was on the leaflet 'How to Commence Bee-keeping.'

This paper had been very carefully drawn up by the Rev. F. S. Sclater. It was succinct, plain in its language, and eminently useful; and we venture to think that it would have been a graceful act if some slight recognition had been shown of the trouble he had taken. Again and again we receive letters from correspondents asking us how they are to commence bee-keeping, and to save ourselves the trouble of answering them individually, and more especially by distributing them at the various bee shows, the general public will be able to get a definite idea what necessary articles are required.

The man who spends his money recklessly in buying all sorts of useless appliances, and the man who strives after a false economy by giving too little for the necessary appliances, in nine cases out of ten will abandon the pleasures of bee-keeping; and so this leaflet comes at a very opportune time, as there is every prospect of a good honey harvest. As usual the battle raged most fiercely about the desirability of taking any notice of the straw skeps. The old thread-bare arguments were used for and against, and the Conference decided, and that quite rightly in our opinion, to retain the instructions for the management of the improved straw skeps.

We do not deny for one moment that with the same attention and management, the bar-frame hive is infinitely superior to the straw hive, nor that in the long run there is much to choose on the score of expense, but it is the greater cost of the bar-frame hives which will prevent their being generally adopted to those who have not the necessary capital. To ignore, therefore, the straw hive would be to forget the chief object of the B. B. K. A., which is to instruct the cottager class in the art and science of bee-keeping, nor are we certain that the management of the straw hive is not a good stepping-stone by the more difficult because more advanced management of the moveable hive with its much greater advantages, though attended with greater risks, owing to the fatal facility for inspection and injudicious meddling.

The leaflet will be issued in the course of the next few days, and we feel certain that the success it will obtain will be well deserved by the B.B.K.A., and the Rev. F. S. Sclater in particular, for the trouble they have taken in its publication.

The question of translating 'The Management of the Straw Skep' into Welsh will be discussed at the next meeting. It is a matter of expense, as it would cost some 50*l.*; but we think that it would be of great advantage to the B.B.K.A., if the Committee could see their way to getting this done, and also the translation of *Modern Bee-keeping* into German, Italian, and French. The fact that thirty-four thousand copies have already been printed shows that this work has been well received by the public; and though the cost of the foreign translations would entail a large expense, the profit on the sale would soon repay this expense, and moreover prove a considerable source of revenue to the funds of the Parent Society.

THE HONEY COMPANY.

Since our last issue we have received several communications respecting this Company, but as we consider that by this time its object and its aims have been sufficiently explained, and its rules and regulations abundantly sifted and criticised, there appears to be no necessity that these communications should appear in our columns. The din of controversy is now hushed; the Honey Company is firmly established; the number of shareholders is daily increasing; a large quantity of honey has been purchased; and the operations of the Company at Columbia Market are being commenced. It will now depend on the wisdom and the energy of the Directors, and the efficiency and the business tact of the management, whether the Company will prove a success. There is, no doubt, a vast amount of work to be done, and numerous difficulties to be overcome, before that end can be achieved. But the Directors possess our fullest confidence, and we feel assured that no pains on their part will be spared, and no means untried, to carry out to a successful issue the purposes of the Company. *Per aspera ad astra.*

THE JOURNAL.

We have to acknowledge the receipt of numerous letters from many kind friends and correspondents testifying to the value of the *Journal* and to the advisability of bringing it out as a weekly publication. These letters have been much in the same strain as those inserted in our last issue, and therefore there is no purpose to be gained in occupying our space with them. The general burden of them is, that if the proprietor sees his way to bring it out weekly, the price should be reduced; and a suggestion is very generally intimated that the subscribers desire that the 'Useful Hints' should be brought out more frequently. We return our sincere thanks to all who have taken the trouble to communicate with us, and we beg to assure them that in any change that may be made their suggestions will receive all due consideration; and as an earnest thereof, we are happy to state that the compiler of the 'Useful Hints' has kindly consented that these should, at once, appear in every issue—at all events, during the summer season.

USEFUL HINTS.

Since our last jottings the weather has been most unfavourable for bees.—'Snow in Scotland—Snow on the Cotswold Hills—biting, bitter winds—12 degrees of frost, absence of sunshine;'—such are the reports which reach us on the 12th of May. In our own neighbourhood we have not heard of a single natural swarm. Apples, pears, plums, and cherries, show an unusual amount of bloom, but the bees have scarcely been able to work upon it at all. A few days more of cold, unseasonable weather, and all chance of a harvest from fruit-bloom will be over.

Feeding has been carried on unceasingly by all careful bee-keepers—the more populous the colony the more food required. We have found Simmins' Feeder, lately described in our columns, to act well. Our plan has been to thoroughly warm the feeder, and wax the inside of the central cylinder, before placing it on the hive, and then to pour hot water upon Duncan's pearl sugar, in the feeder. The bees have ascended at once, and carried down the food rapidly. As soon as a change of weather arrives all will be bustle in our apiaries. Where feeding has been carried on the increase of young bees has continued, and it will be difficult to prevent strong colonies from casting swarms. If such have been supered place the swarm on the old stand, give it a frame, or two, of brood, without queen-cells, from the parent hive, close up the latter by division boards and set it close beside the swarm. Remove the super to the swarm, and, weather permitting, it will be filled more rapidly than if a swarm had not issued. The swarm should be confined to the centre of its hive upon six frames of foundation, placed on the outsides of the two frames of brood, more foundation being given as required. The parent stock may be gradually removed to a distance of three or four feet, and eventually, if increase be not desired, may, with its young queen, be united to the swarm, and the old queen removed. In an exceptionally good honey season the parent hive may also take a super.

Artificial Swarming supposes fertile queens on hand. These may be purchased so reasonably, from queen-breeders, that it hardly pays an amateur to rear them, since the time and trouble of forming nuclei are considerable. A few of these queens should be kept on hand, and one should be caged for twenty-four hours on a brood comb in the queenless part, after a division has been made, all queen-cells having been previously removed.

Now is the time to purchase natural swarms. Buy them of neighbouring cottagers. From 12*s.* to 15*s.* is the value of a good swarm in May. Let the swarm be hived in a new skep in the vendor's garden, and removed at evening, when it can be transferred to the domicile it is permanently to occupy. Swarms should be examined slightly every few days to ascertain whether they are building straight combs, but where wired foundation has been used, according to our directions, this is unnecessary.

Be careful to place all hives level from side to side (horizontal), by means of a spirit-level, and raised one inch at back. This is advantageous for the bees, causing moisture to drain from the hive, and rendering it easy for the bees to carry out all refuse. It must not, however, be practised with hives whose frames range parallel with front and back, in which case the frames would be thrown out of the perpendicular, and the combs built irregularly or joined together. Newly hived swarms must, under all circumstances, be liberally fed, and, in favourable weather, should fill their hives in from ten to fourteen days, when a rack of sections may be given.

When a strong colony is working well in sections, and honey coming in plentifully, as soon as the sections are about half filled, raise the rack and place a second one beneath it. The work will be carried on in both racks, and the two will be filled in nearly the same time as one. There will be no deserting of the upper one. This we have proved by long experience, and our American brethren practise the system almost to a man. Do not attempt artificial swarming, or division of colonies, during cold, ungenial weather. The early part of June will be soon enough. Have all things in readiness—bees, hives, sections, &c.—against the abundant honey-flow, which we trust will come at last.

BRITISH BEE-KEEPERS' ASSOCIATION.

The Second Quarterly Meeting of this Association for the present year was held on Wednesday, April 22nd, in the Board-room of the R. S. P. C. A., 105 Jermyn Street, St. James's, when, among the audience assembled, were the Hon. and Rev. Henry and Mrs. Bligh, Mr. T. W. Cowan, Dr. G. Walker, Mr. Hooker, the Rev. F. S. Sclater, Mr. Garratt, Mr. Waters, the Rev. Mr. Burkitt, Mr. T. B. Blow, Mr. Henderson, Mr. F. H. Meggy, &c.

Mr. Waters (Surrey County representative) presided, and the proceedings commenced by the reading of a paper, entitled 'Honey and Wax, their Varieties and Qualities,' prepared and read by Mr. W. N. Griffin, Hon. Sec. of the Devon and Exeter Bee-keepers' Association, who had provided himself with a variety of specimens of honey, both in the crystallised and liquid state, the produce of bees in different parts of the world, but principally in the British Islands. Samples of wax were also exhibited by the lecturer, who frequently referred to the various specimens during the course of his remarks, as follows:—

Honey and Wax: their Varieties and Qualities.

Mr. Chairman, Ladies and Gentlemen,—The subject which I have the honour to introduce for your consideration this evening, I thought might be of some slight practical utility to bee-keepers, especially now that Honey Companies, depôts, and other similar channels, are being started, in order to facilitate the sale of honey and thus to encourage the industry in which we are all so much interested. When I was asked to read a paper at the Quarterly Conversazione I felt deeply the compliment paid me by the Committee of the British Bee-keepers' Association, but at the same time hesitated to address a body of scientific bee-masters. It has, however, occurred to me that having attended many exhibitions throughout all parts of England and Ireland, I thus had the opportunity of comparing the relative qualities of various kinds of honey, added to which having begun a collection of different samples of honey and wax, some matter could be culled from these notes which might prove of sufficient interest for a discussion.

Honey was used instead of sugar till the fifteenth century, and beverages were made of it called mead, metheglin, pigment, and moret. Not only the Greeks

and Romans, but most of the Asiatic nations, had habitual recourse to honey in the preparation of food; it figured abundantly in their rare composite made dishes, and formed the standing adjunct of simpler fare, mixed with wine, milk or water. The Scandinavian and Celtic nations also manufactured drinks from honey, while yet beer was unknown, and wines were mainly confined to the countries that produced them. Mead and metheglin are sometimes confounded; but the former was obtained from the combs from which the honey had been already taken, while the latter required a hundredweight of honey to produce twenty-four gallons. Both were fermented drinks; metheglin—the honey wine of the banqueting table—was rather viciously intoxicating, while mead was chiefly used as a vehicle for the flavouring of fruit and aromatic herbs. The effect of metheglin upon the heads and tempers of its consumers was notorious, a fact not now difficult of explanation and accounting for many a hot feud and doughty trial of strength between Saxon and Dane.

It is not my intention to give you the analysis of honey; this has already been treated on in a masterly manner by Mr. Otto Hehner and Mr. Cheshire. We have learnt that the nectar of flowers after being collected by the bees and converted into honey, is made up of two different kinds of sugar, dextrose and levulose, in about equal quantities (or invert sugar as this mixture is called) and about 18 to 21 per cent of water. Although all kinds of pure honey are chemically alike, yet there is a considerable difference in their flavour, consistency, colour, and aroma; again, when in a crystallised or candid state there is a marked variation in density and colour. It is these points that I venture on the present occasion to bring forward for your consideration. But before treating on these distinctions will bring to your notice the qualities of the twenty-three specimens now before me. Many are in duplicate so as to enable us to see the marked differences. First, when in a liquid state (these samples having been gradually heated and raised to a high temperature). Second, the same kind of honey, which has been left to crystallise naturally.

1. Honey gathered during 1884, at Bideford, chiefly from white clover. Raised to 194° F., mild flavour, thick, and the colour light straw.

2. Honey the same as No. 1, but left to crystallise, and, though candied, still retaining the same shade of colour.

3. Honey gathered during 1884, at Bideford, very late. Has turpentine flavour and aroma, as if from pine cones. Raised to 194°, rather thick, and of an orange hue.

4. Honey similar to No. 3, but left to crystallise, has become very thick and many shades lighter.

5. Honey gathered during 1884, near Belfast, chiefly from white clover. Raised to 194°, very fine flavour, has since crystallised, is not unlike in colour to the last described, but is not so thick.

6. Honey gathered during 1884, near Bideford, chiefly from fruit-blossoms. Delicious delicate flavour. Raised to 194°, is of a beautiful orange colour.

7. Honey like No. 6 left to crystallise, but has only become slightly turbid.

8. Honey gathered during 1884, near Bridgewater, from fruit-blossoms, has been raised to a high temperature. Delicious flavour, and much resembles No. 1 in consistency and colour.

9. Honey similar to No. 8, but left to crystallise and has become pearly white, delicate aroma, even consistency, and is superior in taste to any candied honey I have tasted.

10. Honey-dew gathered by bees during 1884, at Hungerford, from the aphides of the oak. Raised to a high temperature, almost black, most disagreeable to the palate, and of strong odour.

11. Honey-dew like No. 10, but left to crystallise, and has become a mottled dark brown, much resembling marble.

12. Honey gathered during 1884, near Bridgewater, from plum-blossoms. Raised to a high temperature, exceedingly delicate flavour, pleasant aroma of the fruit, colour of a clear amber.

13. Honey gathered during 1884, near Dorchester, from heather, left to crystallise. Pungent flavour, with the same strong aroma which all heather honey possesses, and of dark reddish brown hue.

14. Honey gathered, during 1884, from buckwheat, grown on peaty land in the fens of Lincolnshire (where the water is tainted and of a colour resembling cloudy pale sherry); has a very objectionable flavour and offensive odour, somewhat resembling stale size; colour, dark reddish brown. Has been allowed to crystallise.

15. Honey gathered during 1884, in Lincolnshire, from the bloom of mustard, clear with a moderate consistency, but practically no flavour.

16. Honey gathered during 1884, in the fens of Lincolnshire, from bloom of mustard and turnip. Raised to a high temperature, has slightly the taste of No. 14, but as no buckwheat was growing in the neighbourhood at the time this sample was gathered, there is probability that the peaty water is partly the cause of the disagreeable flavour of this honey; thick consistency, and of a reddish-brown colour.

17. Honey, like No. 16, left to crystallise has become solid and of a light stone colour.

18. Honey gathered during 1881, in Lincolnshire, from white clover. Raised to a high temperature, mild flavour, thick, and the colour, light straw.

19. Honey like No. 18, but left to crystallise, has become dry and crisp, rich flavour, and of a creamy white colour.

20. Honey gathered during 1884, in Lincolnshire, in the vicinity of woods. Raised to a high temperature, nearly black, and almost as disagreeable in flavour and odour as No. 10; and I am strongly of opinion it is obtained from one of the varieties of honey-dew.

21. Honey like No. 20, left to crystallise, but has only become slightly solid.

22. Honey gathered during 1883, at Cintra, Portugal, from orange-blossom, left to crystallise. Colour, deep yellow, has a peculiarly fine flavour and scent of the flowers.

23. Honey gathered during 1883, at Bideford, chiefly from garden flowers, taken at end of season. Raised to 198° F., excellent quality. Has since crystallised, and is of an amber hue.

We thus find there is a considerable variation in the quality of honey, differing much according to the flowers and locality from which it is collected. The best honey is gathered at the commencement of the season, when the flora is most abundant. An old writer remarks that 'the finest honey is to be found in those countries most productive in wheat and wool.' Some assert that the best honey in the world comes from Pontus, and that its superiority is attributable to the great quantity of balm growing there.

Narbonne was famous for the honey collected from the rosemary, but the quantity is every year diminishing from the peasantry neglecting their bees for their vineyards. Attempts have been made to imitate Narbonne honey by adding to other honey an infusion of rosemary flowers.

The honey of Hymettus has been much extolled, its peculiar flavour being, no doubt, imparted by the wild thyme so luxuriantly growing upon that celebrated mountain.

Martial compares the nectar of the gods to Falernian wine mixed with the honey of Attica.

The finest flavoured and most delicate honey is that which is collected from aromatic plants. I consider that the first essential in honey is its flavour. In comparing

the samples we find that, although collected from the same kind of flowers, yet there is a considerable variation; for instance, Nos. 1, 5, and 18, were all obtained from white clover, yet No. 5 is superior in flavour: and again Nos. 6 and 12 obtained from fruit-blossom are perfect in flavour, though different in colour. Heather honey has a flavour peculiar to itself, and can never be mistaken. The second essential of good honey is that its consistency should be thick. Nos. 1, 6, 16, and 18, would be about equal, whereas Nos. 3 and 12 would come far behind them. Lastly, we come to the colour and aroma of honey, in which we find much variation; from white and light straw to orange, brown, amber, yellow, red, and even black. The light delicate tints certainly catch the eye, but frequently it is found that these honeys are clear and tasteless, and cannot be compared to dark honey with rich flavour and fine aroma. If we are to be enticed by colour, what can we have more tempting than the 'California Honey-dew,' which we know from a recent trial, quoted in the *Bee Journal*, contains fifty per cent of corn-syrup?

Mr. R. R. Godfrey, writing to me with reference to the dark honey, No. 14, says it is 'gathered in the Lincolnshire fens from buckwheat, grown on peaty land divided by drains, the water of which is tainted and coloured from the peaty soil; and if you saw the poor who live about those parts, they look smoke-dried and withered,—I should judge from drinking the water, as well as from the smoke of the peat which is their only fuel.' Then from the same county we have a beautiful specimen of pure light honey gathered from the flower of the mustard, No. 15, but as tasteless as lard: this last named sample cannot bear comparison with No. 6, which, although dark in appearance, is rich in flavour.

I have already alluded to the difference of the aroma of honey. Some years since I had a super of honey collected at Alphington, the aroma of which was pleasant, but so strong, that, when opened, it invariably scented the house. Honey collected from onion, ivy, &c., is most disagreeable to the palate, and has an unpleasant scent, but both these drawbacks will disappear by exposure to the air. Captain Heysham, R.N., lately writing to me with regard to the honey from which sample No. 3 had been taken, says, 'that by leaving the bottle for some weeks with a piece of muslin tied over the mouth, the turpentine flavour and aroma had entirely disappeared.'

Rhododendrons and azaleas yield poisonous honey, which acts as a narcotic: we learn from Grecian history that many of the soldiers in Xenophon's army became stupefied from eating honey whilst marching through a wood. It is supposed that this pernicious kind of honey is usually distinguished, from that which is innocent, by its crimson or reddish-brown colour, its bitter flavour, &c.; but in Florida and California it is so similar in all respects to innocent honey, that the hunters depend upon experience only, and knowing that bad honey soon shows its effects, they, at first, eat very sparingly.

Very little has been said with reference to crystallised or candied honey, and up to the present, whenever it has appeared at exhibitions, no notice has been taken of it, and it is usually supposed to be honey taken during the previous season; but this is an error, we must remember that some kinds of honey become solid far quicker than others. I am strongly of opinion, with Mr. Hehner, that it should never be classified with honey in a liquid state, and that, in prize schedules at our autumn shows, there should be a distinct class for crystallised or granulated honey. Reverting to the samples, here again we find a variety of hues and distinctions in density. Although No. 9 is not the most tempting in appearance, I would, without a doubt, say that it is the best candied honey that I have tasted.

Turning our attention for a few moments to honey-dew, we find that the term is applied to a viscid transparent substance, as sweet as honey itself, that appears on the leaves of the oak, ash, lime, sycamore, blackberry, &c., sometimes in the form of globules, at others resembling a syrup, generally most abundant (about every third year) from June to September. The ancients suppose it to be a deposition from the atmosphere. The Rev. Gilbert White, in his Naturalist's Calendar, regards honey-dew as the effluvia of flowers, evaporated and drawn up into the atmosphere by the heat of the weather, and falling down again in the night with the dews that entangle it.

Mr. Curtis considers it to be an excrementitious matter voided by the aphis, or vine-fretter, an insect which he regards as the general cause of what are called blights, assuring us that he never, in a single instance, observed the honey-dew unattended by aphides.

Bevan is of opinion that there are two sorts of honey-dew, one a secretion from the surface of the leaf, the other a deposition from the body of the aphis. Ants are particularly fond of this fluid. I may also mention a circumstance which came under my notice at Otterton, Devonshire. Whilst in the rectory grounds, I was attracted to a large lime-tree by the busy hum of countless humble-bees collecting the honeydew from the leaves, which were covered with this sticky substance; it evidently had a pernicious effect, as many of the insects had fallen to the ground in a semi-intoxicated condition. Judging from the foregoing, and reverting again to samples Nos. 10 and 11, we cannot wish to have much of this anything but ambrosial nectar stored in our hives.

I now come to the latter part of my subject, the varieties of wax; and for many of my samples I am indebted to the kindness of Mr. Hehner.

Bees-wax, which is a natural secretion of the bees, and may be called their oil or fat, is composed of 12 per cent of cerotic acid and 88 per cent of myricine; these acids are unique; but in wax, as in honey, we get a variation in colour and aroma, although chemically it is alike in all parts of the world.

In English wax we have pale yellow, deep orange, brown with a greenish tint, and dark brown; from the East Indies, pale and dark drab; Mauritius, dark brown and mahogany; Melbourne and Sydney, two shades of grey; Algiers, deep yellow; Gambia, light brown; Spain, deep orange; Hungary, a lighter shade mottled with white; Carnaubia, pale sage green. This latter sample in appearance resembles marble; it requires an exceedingly high temperature to melt.

Bees-wax cannot chemically be imitated, but there are many substances which are analogous to it, and in commerce are used in its place. Of these, spermaceti is the nearest allied to bees-wax, as a fat from the animal kingdom; but on the other hand, neither bees-wax nor spermaceti must be called fats.

Then we have stearine, or stearic acid, which is quite white, and is extracted from fat; all fatty substances known as fatty acids contain stearic acid, in a more or less degree.

The insect wax of China enters into commerce; it is found on the surface of many trees there, and is produced by a small hemipterous insect (*Coccus sinensis*), which about the beginning of June climbs the tree, feeds on it, and deposits on the branches a wax resembling hoar-frost. This is scraped off, melted in boiling water and strained through a cloth. Another wax of insect origin is the Andaquiss wax of South America, which is produced from a small insect called Avesa.—(*B. B. J.*)

We also have a variety of vegetable waxes. One from Japan, of which I have a sample, is of a light straw colour, and in appearance is not unlike our best kind of English bees-wax.

There are trees also which afford wax in great abundance: Myrica cerifera augustifolia, or wax tree of Louisiana, and the Myrica cerifera latifolia, of Penn-

sylvania, Carolina, and Virginia. The latter is now naturalised in France, and is, I believe, being cultivated in Algeria; it flourishes also in the dry lands of Prussia. The fruit of this wax plant (or myrtle-wax, as it is sometimes designated) is plunged into boiling water, enclosed in a bag of coarse cloth, and in a few minutes the liquid wax floats to the surface, when it is collected, cooled, and remelted into blocks. It is said to have the same chemical composition as bees-wax, but this I cannot state with certainty.

We have also two kinds of paraffin wax, or block paraffin, of a transparent white, one melting at 110°, and the other at 136°.

Cerisin, or earth-wax, in various colours—black, yellow, red, and white.

Thus a variety of clarified fats and other substances contribute to-day, at a much cheaper rate, to many of the purposes for which bees-wax was formerly employed; but on the other hand, they cannot actually take its place, as all these substances will melt at a comparatively low temperature, whereas bees-wax requires a far greater heat to reduce it to a liquid state, and it will very soon become solid when removed from the fire.

The goodness of bees-wax, independently of its colour, may be estimated by passing the thumb-nail forcibly over its surface: if good, the nail will pass with a kind of jerk, but if no obstruction be felt, the wax may be looked upon as adulterated with suet or some similar substance. The aroma of wax very often resembles that of the honey that has been stored in it.

Very much more, I am aware, might be said on the subject which we have been considering, but I trust the matter now before you may be of sufficient interest for discussion, and it only now remains for me to thank you very heartily for the patient hearing you have given me.

Discussion.

Mr. Cowan thanked Mr. Griffin very heartily for the interesting paper he had kindly contributed, and also for the great trouble he had taken in collecting so large a number of samples with which to illustrate his observations. Flavour was generally deemed to be the most important consideration, and he was inclined to think that honey submitted to the high temperature of 194 degrees, mentioned by Mr. Griffin, must deteriorate in flavour. He did not suppose that the honeys exhibited and spoken favourably of were to be taken as samples of flavour at that temperature. He was sure that, in a great many cases, honeys dissolved at that temperature would lose their flavour entirely. Mr. Griffin had said nothing concerning the effect of altitude on the quality of honey. It had considerable effect. There was not much opportunity of gaining experience of this fact in England, but in Switzerland it was easily noticeable. He had found that at different altitudes the grain of honey varied. Some of the best came from the Bernina, 6165 feet. The flavour of that honey was most exquisite. It was a perfectly white, fine-grained, and very luscious honey, with the most delicious flavour of roses he had ever tasted. He was surprised to hear that the honey produced from buckwheat in Lincolnshire was so bad, and doubted not that this fact was due to the peaty nature of the soil. He had tasted honey collected from buckwheat grown on good soil, and although dark in appearance was not bad. The honey from which gingerbread on the Continent was generally made was frequently of buckwheat extraction. His experience differed from Mr. Griffin's with regard to honey collected from onions. He had not found that the objectionable flavour disappeared in course of time, and even if bees were collecting from *Allium ursinum* there always remained a taste of garlic which could not be eradicated. There was a flower known as *Astrantia major*, which imparted a very strong flavour to honey; and even when other flowers had been laid under contribution by the bees, if *Astrantia major* existed in the district, its flavour would predominate. He had tasted it in honey collected at Gryon at an elevation of 3707 feet above sea-level. The flavour of Narbonne honey was very fine, and partook of the source from which it was collected, namely, rosemary. With regard to classing candied honey and run honey separately, he quite agreed with Mr. Griffin. The flavour became altered immediately after granulation, and it was impossible for the best of judges to decide between the two kinds of honey if they were both submitted in the same class. With regard to honey-dew, he was, to a great extent, in accord with Mr. Griffin. He believed it was the exudation of leaves, which was the opinion of a great many persons. But it is not altogether valueless, and that from the pine has a peculiar flavour, but not at all disagreeable. With regard to wax, he thought the best test of its purity was the temperature at which it would melt. All fats would melt at a much lower temperature than wax. He had seen a great number of samples of beeswax that had been analysed at the Zurich Exhibition, and that has been brought from different parts of the world. Every one melted at the same temperature, namely, from 145 to 147 degrees Fahrenheit. He exhibited two specimens of honey gathered in the same district during the previous season, the lighter-coloured one having been gathered from clover, and the darker from general blossoms. He had received from a gentleman some samples of reputed hawthorn honey of a very white colour. He could not quite agree with the sender, as there was no flavour of hawthorn bloom at all in the specimens, which were remarkable for their absence of flavour. He had had in his possession, since the previous August, some honey gathered in the Vosges mountains, which had not crystallised up to that time. He also had some taken from near the Lake of Geneva, which was very similar in flavour to the Alsatian mountain honey, both of which samples he would ask those present to examine. The speaker concluded by again expressing his acknowledgments to Mr. Griffin.

Mr. Garratt added his tribute to the excellence of Mr. Griffin's paper. The historical sketch, as well as the technical information given, was exceedingly interesting and useful. They had had recently a paper and discussion on 'Honey Judging at Shows,' and he thought the facts narrated by the lecturer would throw a good deal of light on that difficult subject, and enable judges in future to estimate with more exactitude, perhaps, the relative qualities of merits of exhibits. Although flavour was an important question, still he thought that a preference was very often given to those honeys which had the most taking appearance. The public were always attracted by that which pleased the eye. He thought the temperature of seasons had a great deal to do with granulation. Mr. Griffin had stated that rhododendron honey was poisonous. It seemed to him a wise provision of nature that honey bees did not gather from that flower. He had often watched, but had never seen any but humble bees working amongst those plants. The nature of honey-dew had been somewhat largely discussed. Last year there was a great deal of honey-dew about. In his district they suffered very much from blight, which affected red and black currants very much. The leaves were literally coated with honey-dew, and he felt inclined to believe that it was an insect deposit rather than an exudation from the plant. With regard to buckwheat honey, which Mr. Cowan praised, his experience was that it was always unattractive, both in taste and appearance. Still, he thought all kinds of honey had their uses. The inferior qualities could be utilised in applied forms. The Germans were very clever in using honey to make gingerbread, and the result, everyone would admit, was excellent. He thought everyone commencing bee-keeping should study the flora in the district, because some districts were unfavourable to bee-culture, and losses might be incurred which a little forethought would

have prevented. Localities, where there was a prevalence of fruit and white clover, were very suitable. He would have been very glad if Mr. Griffin could have said something on the size and form of granules. He had found that honey often granulated or crystallised very unevenly, and in fact became partially crystallised and partially liquid. He would like to know the reason of that, and whether it could be obviated.

Mr. F. H. Meggy (Essex representative) would be glad to make a close examination of Mr. Griffin's specimens. He thought that the B. B. K. A. ought to keep samples of honey for inspection at their headquarters. He thought it would be practicable to have a collection of honeys in specimen glasses, similar to those shown by Mr. Cowan, for disposal among the various branches, say twenty-four in a box, with printed labels on each, at about 5*s.* or 7*s.* 6*d.* the box.

Mr. Cowan promised that Mr. Meggy's suggestion should be brought before the Committee of the B. B. K. A.

Mr. Griffin, in reply, said he would be glad for anyone to examine his specimens; he regretted the collection was not perfect, but he was, however, endeavonring to make it more complete, and in the interests of scientific apiculture, which he was always ready to advance, he would be glad of any assistance from members of the Association towards that end. If they would forward to him at San Remo, Weymouth, during the coming season any samples of other varieties of honey which were not mentioned in his list he should be pleased. About $\frac{3}{4}$ of a pound of each kind would be sufficient. Although, in the majority of cases, the honey he had had to deal with retained its flavour at a high temperature, he quite agreed with Mr. Cowan that some delicate honeys submitted to the temperature would become damaged in flavour. With same regard to the unpleasant aroma of onion honey, he doubted not that it would disappear on exposure. The well-known way of tying a piece of muslin over the jars would no doubt answer the purpose.

Mr. Cowan proposed, and Mr. Garratt seconded, a vote of thanks to Mr. Griffin for his valuable paper, which was duly acknowledged.

The Hon. and Rev. Henry Bligh proposed, and the Rev. Mr. Burkitt seconded, a vote of thanks to the Chairman, who briefly returned thanks, and the proceedings terminated.

The Librarian of the B.B.K.A. desires to acknowledge, with thanks, the gift from Mr. F. R. Cheshire, of two copies of his paper, entitled 'The Apparatus for Differentiating the Sexes in Bees and Wasps; an Anatomical Investigation into the Structure of the Receptaculum Seminis and adjacent parts.'

A copy of Dr. Stroud's 'The Honey Bee (Apis mellifica); its Natural History and Management, with Appendix and Glossary,' has been placed in the Library.

HONEY AS FOOD AND MEDICINE.

(*Continued from page* 151.)

The Honey Cure.

In our time, when grape and milk cures are fashionable, Pastor Deichert, the chief representative of the Hessian Bee-keepers' Association, asserts that a honey cure accompanied by the same dietetic treatment, would yield much more favourable results, not only as a cure for diseases of the breathing organs, but also as a basis for the manufacture of electuaries. But the doctors should not set to work so homœopathically as they have done up till now, for the saying that 'Where a little is good, more is better,' applies certainly to honey!

(*c*) *Honey for Coughs.*

We request those who suffer from this complaint to notice the following communication from Herr Kraemer in Brumath:—

'Brumath, February 1885. During the course of this winter I have often had opportunity of noticing how beneficial genuine flower honey is for affections of the throat, hoarseness, coughs, catarrh, and inflammation of the wind-pipe, as well in the case of the young as the old. Having had my attention drawn to an article in the *Zornthal-boten* about the healing properties of honey, I have used this remedy for myself and numerous patients in my neighbourhood, and we are all agreed in our praise of the softening and loosening effects it has. For those who suffer from the chest, it is especially strengthening.

'Honey has the most effect when taken lukewarm,—a good teaspoonful every two hours throughout the day, at night before going to bed, and in the morning at least an hour before breakfast. Many invalids mix a little goose-fat with the honey, and are much impressed by the thus increased beneficial effect of this simple and cheap medicine.'

The Austrian-Hungarian Bee-paper gives us further an account of the healing of an invalid, who had become subject to a cough in consequence of a severe hæmorrhage: 'During his illness the patient took several medicines, but without success, so that he remained a martyr to this cough for almost a year. Last year a friend recommended him to take honey. He did so; and after having taken it for one month, he lost his cough.'

(*d*) *Honey as an Ointment.*

Honey mixed to a paste with flour is a simple remedy for abscesses and boils; it brings them to a head and lessens the tension and pain. The honey must be warmed, spread on linen, and laid on the suffering part.

(*e*) *Honey for Diphtheria.*

From the annals of the Franciscans in Thann, in the year 1217, we learn that our forefathers used honey as a remedy for diphtheria. It therein says:—'On Shrove Tuesday an unknown disease appeared in the land, so that people's tongues in their throats became white, as if covered with mouldiness. They could neither eat nor drink, suffered also from a dreadful pain in the skin, as well as a pestilential fever, which drove the people out of their minds, and within Basle alone destroyed 2000 persons in eight months, here and at Mühlhausen, Altkirch, and Ruffach, Gebwiler, Sulz, and Colmar, many have died, as well as in the whole of Lower Alsatia and Swabia. For a long time no remedy was found to remove this evil. At last it was discovered that he who wished to recover must, while using such remedies as the physicians gave him, every two hours wipe the mouth and throat thoroughly, and then cleanse with rose-honey (honey-comb).'

The symptoms here described are quite those of diphtheria. The patient should be given a spoonful of lukewarm honey as often as he feels difficulty in swallowing, at the same time not neglecting to call the doctor before this fearful disease has advanced too far.

(*f*) *Honey and Sage for Internal Throat Complaints.*

Take some green or dried sage-leaves, boil them for about half-an-hour in a pint of water. Then let the decoction run through a sieve, add a spoonful of honey and one of vinegar to it, and gargle with it. The viscous phlegm, and which accumulates in quantities, will be thereby detached, and can be spat out, and the pains in the throat will soon cease. Repeat this gargling several times during the day, according to need.

NOTTINGHAMSHIRE BEE-KEEPERS' ASSOCIATION.

The above Association now numbers close upon a hundred members in various parts of the county, which

we have subdivided into districts and appointed a district secretary to superintend each division. Many of the members have availed themselves of the advice and experience of the district secretaries, who act as experts each for his district. There have already been lectures (illustrated practically) delivered at Farnsfield, Willoughby-on-the-Wolds, Hucknall Torkard, and Mansfield, and each lecture has been attended with good results. Arrangements have been completed with the Notts Agricultural Society to hold the Annual Show in connexion with that of the Notts Agricultural Society at Lenton, Nottingham, on July 2nd, 3rd, and 4th. A liberal schedule of 20*l.* has been provided, and we hope it will be the means of thoroughly establishing our Association on a proper basis in the county. Shows in connexion with local flower shows have been also arranged at Hucknall Torkard, Farnsfield, Mansfield, Willoughby, Retford, and Radcliffe-on-Trent. The bee-tent will be in attendance at all. Members will see from this that we have not been idle, and that we had plenty to do to revive the Association which all but died last year. I enclose a newspaper cutting of a report in the *Notts Express* of April 24th, furnished by one of our district secretaries of his visit to a part of the county, where bee-keeping is little known on the bar-frame principle.—E. Ferneyhough, *Hon. Sec.*

'A Visit to Keyworth Bee-Keepers.

'One of the many privileges of the members of the above Association is the visit of an expert at least once a-year to their apiaries, for the purpose of giving them instructions and assistance in the management of their bees, the charge in no case to exceed the cost of railway fare. The Rev. H. P. Ling, rector of Keyworth, being a member, availed himself of the opportunity, and as it is my duty, being one of the district secretaries, I had much pleasure in going and explaining the modern methods of managing bees for the largest profit. I was agreeably surprised when I arrived on Tuesday afternoon to find Mr. Ling had assembled in his garden a large number of his villagers, who keep bees, to witness the manipulating of his bar-frame (as there is none in use in the village except his), and to hear and see the advantage of the modern system of bee-keeping, and the benefits of becoming Members of the Notts Bee-keepers' Association. After I had explained the advantages of the bar-frame, and how much more control they had over their bees in them, and how easily they could ascertain all that the bees were doing inside the hive, by taking out the frames when the weather admitted them so doing, and a better way of obtaining the honey than that of stifling the poor insects with fumes of brimstone, and cutting out of the hive a confused mass of comb, pollen, grubs, and honey contaminated with sulphur and covered with the dead bodies of the victims. We then adjourned to the gardens of some of the cottagers who keep bees, to examine theirs in skeps, and to show them the way of getting super honey from them, as it is worth considerably more money per pound than drained honey.

'Keyworth is a very good part of the county for keeping bees, as there is an abundance of honey-yielding trees and plants; all the hives have plenty of store and are strong with bees, except one. The man that pointed it out to me said he could always tell which was the strongest, although he never lifted them off the stand (except to put them on the sulphur-pit), and, strange to say, the hive he pointed out to be the strongest had no bees in it. What made him think it was a strong one was that the bees from the other hives were clearing all the honey out of it. The cause of the stock dying out was no doubt that the queen died last autumn, it being too late to rear another in her place, as there was plenty of honey left in the hive.'

On Monday evening, May 4th, at St. John's Schoolroom, Mansfield, a lecture was given by Mr. F. H. K. Fisher, of Farnsfield, showing the advanced system of keeping bees and gathering honey. The Rev. W. Maples occupied the chair. The lecture was given at the monthly meeting of the Mansfield Horticultural Society, at whose Annual Flower Show an exhibition of bees, honey, hives, &c., will be held. The lecturer showed in a clear and able manner how bees may be kept to be a source of profit and interest. Practical illustrations were appropriately introduced, the audience being deeply interested in the subject, which was made intelligible to the veriest novice. A vote of thanks to the lecturer and the chairman closed the proceedings.

Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

MR. CHESHIRE AND HIS CORRESPONDENTS.

I trust that, in pitiful consideration for your humble servant, you will ask those of your numerous readers who may desire to put to me questions, divers and legion, to kindly do so through your columns. I am spending a good part of every day in anatomical and physiological inquiries respecting the wondrous little creature whom you especially favour and encourage, and I should spend more did not the too dreadful postman ever bring me inquiries from those whom I know not in the flesh, which must, unless I am to be discourteous, receive an answer. I am not 'The Bee-keepers' Adviser,' and hence requests for names of the best hive-makers, the place to purchase swarms, lists of best honey plants, *et hoc genus omne*, are to me a hindrance, I had almost said a nui—— but I forbear. Inquiries respecting any peculiarity or problem in apiculture are, on the other hand, most welcome, and I tender my thanks for specimens, which have done me immense service; specimens of which I never can have too many, and just now hermaphrodite bees are beyond anything desirable. All specimens should be alive if possible, and a closed box is much better than one having holes in it. A few bees cannot easily be stifled, and holes in boxes chill too much the occupants, while they often raise the postman to fever heat, which leads to bruising of the knocker, and an expostulation respecting sending anything alive through the post. Believe me, dear Mr. Editor, yours, persecuted and highly favoured—F. Cheshire.

HONEY PLANTS.

That group of plants known as herbs is the source of some very important and distinct honeys, as, for instance, the famous Narbonne honey is secreted by the rosemary, a native of South Europe. The honey of Hymettus was gathered from thyme. Again Californian (pure) honey is a combination of the nectar obtained from mountain sage, marjoram, &c.

It will thus be seen that the natural order Labiatæ to which the above plants belong furnish a considerable amount of honey, and this, too, of excellent quality. We have here then a class of bee forage second to none, as far as quality of honey is concerned, plants that are quite hardy and flourish well in this country. Then why can we not obtain Narbonne or Californian honey at home?

An acre of such herbs as rosemary, thyme, lavender, horehound, &c., would go a long way in this direction, and would produce honey, if not native Narbonne or

Californian, equal in quality to either. The cultivation is simple and can be propagated to any extent. The soil suited for their growth need be anything but the best, in fact, a light stony dry soil would suit them well. Rosemary can be increased by seed or cuttings. Sow the seed in April or May in fine soil, and transplant a few inches apart, when large enough plant eighteen inches apart. Cuttings should be inserted at the beginning of May in sand in a rather shady situation, where they may remain till the following September, by which time they will have taken root: they may then be planted 18 inches to 2 feet apart. Cuttings may also be struck in heat much quicker, all the subsequent culture required is to keep them free from weeds and to stir the soil occasionally.

Lavender is also increased rapidly by seed and cuttings. Seed should be sown in the same way as rosemary, and the cuttings slipped off when the young shoots begin to grow in April or May. If inserted firmly in sand, with the assistance of a little gentle heat, they will strike root, and make nice little plants the first year; in the following spring transplant to one foot apart in the rows, and the rows two feet apart.

Thyme is increased by division of the old plants by seed and by rooted branches. The best plants are raised from seed, which should be sown and treated in the same way as lavender and rosemary, excepting the distance apart from each plant need only be half as recommended for them. Marjoram has already been noticed. Horehound may be propagated by dividing the plant in spring, by sowing the seed in March or April, or by cuttings planted in a shady border, plant 18 inches in a dry situation.—Hy. Dobbie, *Thickthorn, Norwich.*

EXPERIMENTS IN BEE-KEEPING.

There may be nothing new in the following experiments, nevertheless, as many learn better from 'instances' than from wise saws, they are submitted in hopes that they may prove useful to some, at least, of the readers of the *B. B. J.*

Warmth v. Ventilation.—On June 14th last, a swarm of bees was put into a hive, whose walls consisted of ½ inch and 1½ inch stuff with an intervening space 1 inch wide filled with shreds of paper rammed hard; bottom two thicknesses of ½ inch stuff with a layer of sawdust 1 inch thick between them: top, a layer of felt, a tightly fitting crown-board 1½ inch thick and 3 inches of sawdust. In September two nice bars of honey were put through extractor and returned. The crown-board was made as *air-tight* as strong gum and brown paper could make it, and covered up with saw-dust. A strong flat top kept off the wet. The entrance was contracted to 1 inch. During the warm spell in the first week in December the bees in this hive remained quiescent a day longer than their neighbours. They disregarded altogether the warm sunshine which brought other stocks out on Jan. 5th, but came out well on Jan. 27th.

N.B. Although they had kept within doors fifty-one days there was no more unpleasant sign of their flight than in the height of summer.

The hive was opened on March 5th. The bees covered four bars; there was no sign of mould or damp and some sealed stores were still untouched. The unoccupied bars, too, were quite dry and free from mould. The stock has since been left to its own devices and is not quite so active as stocks which have been stimulated. Not more than twelve pounds of sealed comb were left for winter stores.

Dry-sugar Feeding.—A virgin swarm of hybrids came off on July 28th. It more than filled a skep and was put into a tin-framed hive full of worked-out comb. The bees were left to their own devices until Aug. 2nd, when a Neighbour's Feeder full of Demerara sugar was placed on the feed-hole: and kept replenished from time to time. At first nearly a pound a-day was taken; the quantity then gradually diminished until in November the feeder ceased to be visited. It was then taken off, but replaced again full of sugar on March 5th. The stock is now a very strong one, and is more active in carrying in pollen and pea-flour than any other stock now.

Economical Feeding.—A stock of hybrids which had thrown off four swarms was found to be entirely without stores at the beginning of October. It was fed up with about two quarts of the black drainings from the wax-smelter. It has wintered well and is now fairly strong. It required feeding on March 5th.

Winter Feeding.—A driven stock of bees was put into an empty hive and kept supplied by a Raynor's feeder (index at 3) from Aug. 6th until present date (March 23rd). The syrup supplied on Nov. 15th was not all taken till March 16th following. The bees are strong and healthy.—E. B.

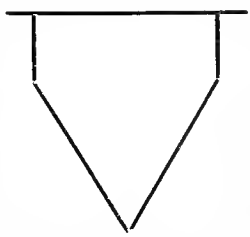
DRONES.

The attention of bee-keepers must frequently have been attracted to the apparently great superabundance of drones in a hive. Various plans have been suggested to reduce their number, such as drone-traps and other contrivances, but they are of little use. The important problem to be solved appears to be to ascertain clearly the conditions under which bees at one time build worker-cells and at another time drone-cells. I have for many years considered that the air is the exciting cause for the production of drone-cells. That the air has a powerful effect on the worker bees may be shown by placing a few of them under an inverted wine-glass; in a short time they fall into a torpid or semi-torpid state, and so continue as long as the air is excluded; but upon removing the glass they revive, begin to crawl about, and eventually fly away. I could refer to other similar instances, but wish now to describe the particulars of an experiment that I had the misfortune to try a few years ago. Having a strong colony of bees in a wooden box about eighteen inches square, I placed upon them a shallow super in such a manner that it projected about two inches beyond the front, thus leaving a space about 18 by 2 inches completely exposed to the air. The bees, therefore, had ready access either to the top of the hive or to the super without passing through the hive; my object was to save them the labour of ascending and descending through the crowded hive. They availed themselves of this arrangement, but upon removing the super I was sadly disappointed to find a mass of drone-comb, drone-brood, and drones themselves, such as I have never seen equalled. I at once came to the conclusion that the effect of the air on the worker bees was the cause of this enormous quantity of drone material, as the shallowness of the super prevented any dense cluster of the bees. The proceedings of the bees themselves in an ordinary hive tend to confirm this view of the effect of the air; for upon a swarm being first hived the cluster is very dense; it is absolutely impossible that the least breath of air can penetrate to the interior, and worker-cells alone are formed. As the combs increase the bees covering them are far less dense, they now feel the influence of the air, and drone-cells are produced, these latter being always found at the bottom of the combs.

It is well known that bees will convert the worker-cells of combs into drone-cells, but I am not aware whether the converse takes place. I should imagine that either process would occur according as the bees would feel the influence of the air or otherwise.

By far the most effectual means at present prevailing of limiting the number of drones is the very excellent plan of introducing a swarm into a hive with only four or five frames fitted with foundation comb, and adding

other frames as required. This plan is undoubtedly attended with great success, and its success probably depends upon keeping the cluster of bees as dense as possible, thereby excluding the air and favouring the production of worker-cells. The plan is, however, attended with one serious objection, viz., that not one bee-keeper in fifty (myself among the number of incapables) is able to carry out the process. A more simple method is therefore desirable, and I think that the end might to some extent be attained by the form of the hive. The object to be kept in view should be to give ample space for the bees when first introduced. The cluster is then naturally compact, and there is no fear of drone-cells; and when the combs are extended, the space should be contracted, and reduced to a minimum when the drone-cells are about to be formed. In the case of straw skeps, they should be made in the form of a cone, or sugar-loaf shape with the apex downwards. The form assumed by a swarm of bees hanging from the branch of a tree would afford an exeellent model. In the case of a bar-frame hive, the shape of the frames should approximate to that of a deep triangle with the upper corners cut off, and with the apex downwards.



But now *audi alteram partem*.

It is known that the honey-glut, as it is termed, lasts only for six or eight weeks; that the bees nearly cease to collect honey about the middle of July; and that the drones are destroyed about that time, or a little later. Analogy offers a plausible if not the true explanation of these phenomena. I need only allude to the motherly instinct possessed by the females of nearly all animated creatures for their offspring. The worker-bees strongly possess this feeling, as is shown by the care they take of the brood. The drones, even in their winged state, are altogether dependent for subsistence upon the honey brought into the hive. The maternal instinct of the worker-bee is therefore excited to provide food for their helpless brothers, and honey flows into the hive in a copious stream. After a time this motherly feeling subsides, and is subsequently changed into animosity; the flow of honey consequently nearly ceases, and the drones are eventually destroyed.

A most important question now arises. If we greatly reduce the number of the drones, may we not at the same time reduce the maternal instinct which is the cause of the accumulation of the honey? It is true that a hen with one chick is equally solicitous as if she had a large brood, but such may not be the case with the bees, where many thousand insects work together for the common good. Experience resulting from observation can alone decide this question, and it is to be hoped that some apiculturalist competent to undertake the investigation will take the matter in hand, and publish the result in your paper.—W. B. Hunt, *Chaldon, Caterham.*

BEE-KEEPING AND THE LABOURING CLASSES.

As the summer is now almost upon us, it would be as well to consider how such would benefit mankind, and the cottager in particular, in other ways than by the mere gratification of the senses of sight and smell. There is the vast extent of field and pasture, yielding a rich harvest to those who care to employ means to collect it, with no rent, no taxes, and the minimum of expense for labour, now left to waste and decay. Why should this be so? There is no earthly reason why such a precious gift of the all-wise Creator should be thrown on one side as of no use. But such is the case patent to all who choose to observe in all parts of this our most fertile of all countries. Why this apathy to one's own well-doing? Very little capital is required, very little trouble is entailed, but,—mark this,—very good pay must accrue to those who will diligently seek it by attending to their labourers' want at the right time, and strenuously avoiding that frequent malady of mankind—procrastination.

Do you doubt it? Then let me endeavour to prove my case. Pigs, fowls, ducks, and rabbits, the cottager keeps in order to make a little; how much of this little does he make out of them? He keeps a pig, and unless he has a very large garden his bacon costs him more than he can buy it for at his shop. Fowls and ducks pay a little during the summer months, and frequently get the owner into 'hot water' for trespassing on Farmer So-and-So's fields or scratching up Mrs. Smith's scarlet runners which are just looking up above the ground, and an anything but quiet *tête-à-tête* across the garden hedge in the evening is the consequence; pen them up and they are not worth a rap. Of rabbits, I heard a cottager say once, 'If I was to steal all their grub they wouldn't pay.' I am rather of his opinion. And how about the time, labour, and mortality of this kind of stock? Very heavy on all points as compared with my *protégés*, the honey bees. *Experientia docet.* I have 'gone in' extensively for all of the above, and have proved my argument by practical experience. A cottager who keeps bees is a frequent sight, but a cottager whose bees keep him is rare. It need not be so.

How is he to do it? An answer *in extenso* to this question would necessitate more space than Mr. Editor would grant me, but a few hints I am sure he will favour me with room for.

Associations have been specially established for the purpose of showing the cottager how to keep bees on proper humanitarian principles and make them pay; they will even pay when kept on the old killing-the-goose-that-lays-the-golden-egg style. Lectures are delivered and bee manipulations are conducted at the various horticultural and agricultural shows throughout the county during the summer months. Let the would-be bee-keeper attend some of these held near him. Honorary experts are provided in different districts, who are willing to give their advice gratis at any time, and the *British Bee Journal* is distributed—to those who are members of the Association—every fortnight; let him purchase a standard work on modern bee cultivation; it will cost him for a good one but 1*s.* 8*d.*; read and digest this thoroughly: have but one hive to commence with the first season, and don't be talked into going in for more: this last hint is worth all the others put together, as ninety-nine out of every hundred who have given up bee-keeping, have done so by undertaking the charge of more colonies than one before they could master even a quarter of a one; don't interfere with this one more than is absolutely necessary; once a-week is frequent enough to take away surplus honey unless there is a very heavy flow on.

And now about the profits. I will first give one or two instances of other's profits and then finish by a sample of my own. In Cook's *Manual of the Apiary*, 1884, a work for advanced bee-keepers, it is stated that a certain Captain Heatherington received the enormous sum of 10,000 dollars for one season's honey crop; the fifteen hives kept at the Michigan State College gave a profit of 400 per cent over their entire value in the spring; a cottager who resides in a neighbouring county to this realised 22*l.* this last season for his honey crop. I have paid a poor woman near this town (Wokingham) over 6*l.* in one season for very inferior bee-produce, which, if she had kept her bees on the modern system, would have enhanced the value of it to at least 9*l.*, but to every pound weight her bees produced they would have at the least

returned three pounds. The following return is my best sample for last season :—

	£	s.	d.		£	s.	d.
Hive	1	0	0	35 Sections honey at 1s. 6d.....	2	12	6
Sections	0	3	6½	50 do. at 1s. 3d....	3	2	6
Foundations ...	0	3	9	7lb. Extracted Honey.....	0	7	0
Crate.....	0	2	0	Swarm	0	10	0
Stock Bees	0	15	0	Value hive and stock now on hand	1	15	0
Food.....	0	2	9				
Deterioration of hive, &c.	0	3	0				
Profit	5	16	11½				
	8	7	0		8	7	0

I do not presume to promise such a golden result to a first attempt by a novice, and no one, I should think would expect such; but although I laboured under the disadvantage of this being a transferred stock of early last May, I was able to pronounce it my best lot. I, as you see, got a very good price for the sectional honey, as I sold it across my own counter. The cottager can sell it to his richer neighbours at quite as good a price.

There is a drawback to many would-be bee-keepers, and frequent remarks meet my ears. such as 'I don't like them, or rather, they don't like me.' True, there is—I forget who called it so—a 'business end to a bee'; but that need not trouble anyone. I can assure you that that little difficulty can be surmounted. When I first commenced bee-keeping, a stab from an old irascible sentinel bee was, to say the least, unpleasant, but this unpleasantness wears off very quickly; even if you do receive one it has scarcely any effect after you have served what I may term your apprenticeship, as each succeeding sting you receive proportionately loses its virulence. I opened and examined fifteen bar-frame hives recently, and did not get a single sting. Any one can do the same.—W. B. Webster, *Wokingham*, (*Reading Observer.*)

STANDARD FRAMES—LIGURIANS IN SUFFOLK.

Will you allow me space in your valuable *Bee Journal* to pass my opinion on the standard size bars? I consider they are not deep enough. I have one hive with bars thirteen inches deep, and I find they do better in every respect than any hive I have got and always have done when stocked either with English or foreign bees, I think it is much better to have, say, for instance, ten bars in a hive 17 inches deep instead of having 20 at 8½. They can keep the heat up better and the queen will never get into the sections. I find, and have proved by experience, that they always work better upwards than lengthways. It will keep more to the nature of bees in a wild state, for if they have room they always have deep combs. I have on several occasions taken from buildings combs 4 feet in height, but never in length, unless they have been forced for want of room. There would not be any fear of combs breaking while extracting if the bars were made thus :— with a small spline across the centre, so that the bees will fasten the combs firmly to it.

Now for a few remarks on the Ligurian bee. I consider, in time, they will be the downfall of hundreds of bee-keepers instead of benefiting them, for they not only are a nuisance to the owners themselves, but to the neighbours living round, for it is impossible to keep them pure as in time they will be the cause of hybrids for more than a half mile round. I am ready to own that hybrids are the best workers, but they are perfect demons to manage, for when I am extracting from them I very seldom get off without being stung myself, and I am sorry even for the cats and dogs that are moving about within their reach for 100 yards or so; and I am sure most ladies and gentlemen like to walk in their garden without being stung in this way, and this all comes about through the introduction of these very beautiful bees, the Ligurians, which cannot, while pure, get more honey, or store so much, in Suffolk than the English bees. But you can have as many swarms as you wish, for the bees in this part this season are very forward and are already beginning to work in the sections, and cottagers' skeps that have never been fed are hanging out for want of room. I trust we shall have a good season, for I am a lover of bees and should like to see bee-keeping flourish, for I know there is great profit to be reaped if managed on the bar-frame system, as they ought to be.—C. Pollard, *Haughley, Suffolk, May 4th.*

ASSISTING NATURE, ETC.

I have several hives full of bees and ready for supering. They contain eleven frames, and have not been touched since the supers were removed last autumn, nor have they been stimulated. They are Ligurians and half-breds. They certainly were well packed tops and sides, but no frames removed. Do we not sometimes do too much in the way of *assisting* nature? I feel sure, with the uncertain weather we have had this spring, I could not have had them stronger or nearly so strong, as there would have been much risk in opening the hives for manipulation and inserting new combs. I should be glad to hear if others have had similar experience.

Material for Smokers.—A very good material to be used for smoking is old artificial manure bags, the older the better, which can often be procured from farmers at little or no cost. If they are washed and well dried nothing can be better.

Experts.—I have often thought that we should learn much if some of our experts would tell us sometimes of some of their mishaps. Surely they meet with some occasionally. Have they the courage to do this?—W.

ANGLO-CYPRIAN HIVE.

If 'A Correspondent,' who wishes to know the advantages and disadvantages of the above hive, will refer to my Echoes, pp. 287 and 349, Vol. XII., and p. 119 in the present volume, he will find my experience of it. In case he has not access to back numbers of the *Journal*, I will, with your permission, repeat what I have already written. I got an Anglo-Cyprian hive in the autumn of 1883, and populated it with driven bees in September. Twelve frames of foundation were drawn out and well stored with syrup, and the stock wintered well and came out very strong in the spring. I examined it for the first time last year on April 2nd, and found a remarkably fine stock. I did not super till May 21st, but might have done much earlier. I took from it during the season nearly 90 lbs. of honey in sections, but only about sixty were perfect; the remainder were either spoiled by the entry of the queen or not well filled. Being on a lecturing tour for B.B.K.A. in South Wales and in Cumberland in August, I did not take off section-crates until the middle of September, and then I saw such a poor lot of bees that I thought they must be queenless, and being very busy and not caring to bother with them, I covered them just as I took off the crates with an old shawl and a sack, and did not examine them again until the first week in March this year. I then found a stock quite equal to last year's. I have now one crate of 18 1-lb. sections nearly filled with honey; and if it had not been for the cold weather we have had for some days, I feel sure I should have had them completed before now. As I supered earlier by a month this year than last, I expect, should the season be as good as last year's, to get considerably over 100 1-lb. sections. I must say that I am very fond of the hive, and for wintering and producing sectional honey I could not wish for a better. To me

it is as easy to manipulate as any hive, but I should not recommend it to a novice. It has to my mind only one drawback, and that is, the liability of the queen to enter the lower row of sections. If the crates were fitted with a queen-excluding bottom similar to those in Mr. Simmins' crates, the only drawback I find would I believe then disappear. Should further information be required, I shall be glad to give it by letter. — C. N. WHITE, *Somersham, Hunts, May 11th.*

MR. SIMMINS'S NEW FEEDERS.

The method of escaping from syrup-boiling, which Mr. Simmins introduces in connexion with his latest feeders seems a little difficult to understand as regards the *principle* of it. In these new feeders the sugar is put in with cold water, in due proportion, and mixes itself. The bees then 'take it cold.' Very well; but if it can be mixed cold and taken cold from one feeder, why not be taken cold from any feeder? In other words, if boiling is unnecessary, what have they to do with one feeder more than another? The syrup can be mixed 'cold' in any large vessel in the house, and poured into the ordinary inverted bottle-feeders. I should be glad to hear, then, whether the new principle of non-boiling is in any essential way connected with a new form of feeder, as I think it far from unlikely that I have missed the point of Mr. Simmins' invention.—B.

[Your correspondent should understand from sectional illustration and description that water circulates freely at sides and under the body of sugar, and hence the whole is soon dissolved, upon the principle that loaf sugar and water arranged in that manner amalgamate in the form of syrup, providing that *not less* than one-half pint of water be inserted for every pound of sugar. Your correspondent is evidently greatly mistaken in thinking that the same saving of labour can be obtained by first going to the trouble of stirring and mixing sugar and water before being placed in other feeders; whereas with the new feeders all such labour is avoided, as the sugar and water are simply placed in them and no other care is required. Besides, no other vessel or feeder can possibly act in the same manner where the sugar is allowed to rest upon the plain bottom of such, unless, indeed, it should be subject to continual stirring or shaking up. I hope soon to be able to give your readers the benefit of some good illustrations, so that the whole arrangements may be better understood.—S. SIMMINS.]

'IS PHENOL A CURE FOR FOUL BROOD?'

Last autumn in your columns I gave my experience with 'phenol,' Mr. Cheshire's cure for foul brood. I described how I had tried it on hives that were slightly tainted with foul brood, acting fully according to the directions laid down by Mr. Cheshire; yet withal the disease only increased, showing that this course of treatment was unable to effect a cure. I also described how I had tried it on hives to test its powers as a preventitive of the disease, and how it had also turned out in that case a miserable failure. At the time of my writing I was then operating on my diseased bees, and I may here state that those bees all died out shortly afterwards from the disease in spite of phenol, leaving me with empty diseased hives, diseased frames, quilts, &c.

My first action then was to destroy all these diseased combs, quilts, and frames, but my hives being almost new, and rather expensive ones, I was loth to destroy them, so commenced and disinfected them, and afterwards gave them a thorough washing. I then purchased some comb-foundation, and also material for new quilts, and had a supply of new frames and dummies made.

At this time I got the offer of six skeps of condemned bees, and although rather late in the season, I secured them, and making three strong stocks from the six, I shook them into my disinfected hives containing new frames furnished with full sheets of comb-foundation. I then commenced to feed each with phenolated syrup, making it $\frac{1}{40}$, which the bees took pretty well, and in due time had built out their combs, stored them with this medicated food, and sealed them nicely over. The season being so far advanced, the queens did not lay in any of the three hives. After giving them in this way a sufficiency of stores for wintering, I snugly covered them up, intending to 'forget them' until spring.

These condemned bees, I may say, came from different parts of the country, and examining each skep as I drove it, I found all perfectly free from the least trace of foul brood; and, according to Mr. Cheshire's statements, I need have had no fear of disease after this, as I had healthy bees in thoroughly disinfected hives with new frames of comb nicely drawn out from fresh foundation, the bees being all the time fed with phenolated syrup, and their sealed stores of same.

I think that even Mr. Cheshire himself could not say that this was not a fair trial, and if his 'absolute phenol' were what he has led the readers of the *Bee Journal* during the past year to believe, I might have snapped my fingers at foul brood.

Well, I examined these three stocks on the 28th of February, and found each had plenty of sealed stores, but none of the queens had at that time commenced laying. On the 2nd of March I placed a 'Raynor' feeder on each, and commenced spring feeding with phenolated syrup, making it as strong as I found the bees willing to take it. I again examined on the 23rd of March, and found the queens had been laying for some time, there being plenty of eggs and some sealed brood in each. I again made an examination on the 14th of April, and found the combs covered with sealed brood; but, ah! more than half was foul and putrid. I again examined a few days ago, and their appearance was perfectly disgusting.

What will Mr. Cheshire say to this? Will he say as before, that his directions 'may or may not have been followed,' or that it 'may not have been phenol that was used?' or will he candidly admit that 'the Cheshire cure' is very imperfect?

My own advice to bee-keepers, if they have at any time the misfortune to find the least trace of this terrible disease in their apiary, is never to mind 'absolute phenol,' but to destroy those bees without delay, and to burn without hesitation the hive with everything that has been in use in or about it, letting no false notion of economy prevent him from so doing.

I think that if bee-keepers could be advised from what reliable traders to purchase their appliances and foundation, they would be less troubled with any such infectious disease. Also if these traders would guarantee their appliances 'disinfected' before sending out, it would greatly assist their sales, as it is my opinion that diseases are in this way conveyed to many bee-keepers.—ARTHUR B. JOHNSTON, *Brick Hall, Killyleagh, County Down.*

P.S. Should Mr. Cheshire wish any of these bees for examination, I will be most happy to forward them to him.

A CURIOUS CASE OF ARRENOTOKIA.

I have received three queens from kind readers who have seen my request. I needed these for some examination of the glands which I am now especially studying. One of these queens sent by Mr. Webster was found to be a drone-breeder and so turned out as useless. Her spermatheca was, however, furnished completely with spermatozoa. This is the exception which proves the rule; and her peculiarity was probably due to paralysis of some of the muscles attached to the spermathecal valve.

This production of drones only has been artificially produced by pinching the extremity of the abdomen so that the last ganglion is injured. This defective condition is denominated 'arrenotokia.'—FRANK R. CHESHIRE.

THE CULTIVATION OF BEE PLANTS.

It is very interesting as well as gratifying to see how the cultivation of bee plants is attracting the attention of bee-keepers generally, as indeed, it must do so, owing to the rapid strides bee-keeping is making in every direction. The issues of the *Journal* of late have been more profuse in furnishing your readers with the experience, discoveries, and observations of several observant contributors interested in the subject. I hope that future issues will continue to give such information, and of a more extended nature. I am myself testing the merits of about 150 kinds of flora this season, and if other bee-keepers will do all they can in the same direction bee-keepers generally will be greatly benefited by their experience, and its results when made known. As I write these lines I am delighted by the sight before me. Opposite the window at which I sit, I have a plat of wallflowers in full bloom, mostly of the Harbinger variety, and it is very interesting, besides being a great pleasure, to see how they are appreciated by the bees whose hives are only a few yards from such a store of useful forage—honey and pollen being thus afforded in fair abundance. I have watched bees load themselves with large pellets of pollen, and sip the sweets from a few wallflowers within the short space of two minutes. Incredible as this may appear to some of your readers, I can assure them that it is the case. Useful, however, as these wallflowers are to the bees, they only follow in succession snowdrops, crocus, and arabis, all of which have been of equal service to them; while at the same time I have had the satisfaction to know that the planting of them in close proximity to the hives has minimised the flight of the bees on dull and unfavourable days, and prevented large numbers from straying off and getting lost in their search for forage.

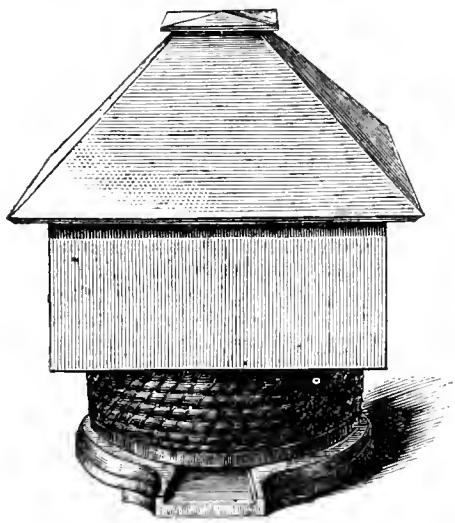
The fruit and clover blossoms being close at hand, garden flora generally will, for a short time, be more or less deserted according to the favourableness or otherwise of the district. The glory of the bees in the fields and orchards is but of short duration, and the end of July will bring them to the gardens again. The bee-keeper is wise who has in readiness all the honey and pollen plants he can for the use of his bees, especially if he has any condemned stocks that he intends to feed up for the winter. By having a quantity of borage, figwort, French honeysuckle, moschata, coccineas, mignonette, and the honey-secreting variety of balsams—I say the honey-secreting balsams, as there is one particular kind that gives more than any of the others, and that it finds work and forage for the bees during that period of activity following the close of the honey season, and which continues until the time of going to rest for the winter. The balsam, advertised by me in the present issue of the *Journal*, is the honey species that all bee-keepers should possess: it blooms until cut down by frost, grows to a large bushy size, branches from top and bottom, and is covered in bloom. I don't think that I shall ever forget how this plant was appreciated by some condemned stocks that I drove for a person last August, who gave them to me for my trouble, and my experience of which I intend, by your permission, Mr. Editor, to give to your readers in some future issue of your esteemed *Journal*.—WILLIAM HOLLINS, *Tillington Avenue, Stafford.*

A SUGGESTION.—Finding it impossible to see with a veil, I have placed in mine facing the eyes a piece of glass, and I find it is a success. This idea might be useful to many.—WM. KINNAIRD JENKINS.

QUEEN WASPS.—At this time of year queen-wasps may be found, late in the evening, by lifting up the leaf which is laid over the heads of broccoli to shield them from the sun. We have killed fifteen during the last week in our small garden. If the broccoli is a little open, the wasps may be found in the branches of the flowers.—G. F.

TRADE CATALOGUES.

ILLUSTRATED CATALOGUE AND PRICE LIST OF IMPROVED BEE-HIVES AND APIARIAN APPLIANCES. Manufactured and imported by C. T. Overton, Lowfield Apiary, Crawley, Sussex. (32 pp.)—This is a comprehensive and well-compiled catalogue. The engravings are carefully done. We have here representations of the Cowan Hive, and the numerous hives that were exhibited by Mr. Overton at the International Exhibition. Besides the various bar-frame hives, we have several straw hives; we would direct the attention of our readers more especially to No. 21, called the Sussex Prize Straw Hive, with super. The prices seem remarkably moderate. The catalogue also contains a list of bee-books, and a most valuable list of flower seeds for bee-pasture. Mr. Overton is the expert of the Sussex Bee-keepers' Association, and has obtained a first-class certificate as expert at the examination of the B.B.K.A.



Sussex Prize Straw Hive with Super.

MODERN BEE-KEEPING APPLIANCES FOR 1885.—An Illustrated and Descriptive Catalogue, containing Useful Information for Amateurs and Practical Bee-keepers. Published by J. R. W. Hole (Qualified expert B.B.K.A., London Exam.), Tarrington, Ledbury, Herefordshire. (24 pages.)—This is rather more than a mere catalogue. There is to be found in it a considerable amount of sound, practical information as to the uses of the various appliances, and also the working of the frame-hive. Its perusal will be of great service to beginners in bee-keeping, and will render them great assistance in their selection of appliances. The information is concise and to the point. It contains a very full description of foreign bees, especially Cyprians. It has also a list of flowering shrubs and plants.

REDSHAW'S Illustrated and Descriptive Catalogue of Hives and Bee-keepers' Appliances for 1885. The Apiary, South Wigston, near Leicester. (16 pages.)—In this catalogue will be found a useful assortment of bee appliances, at moderate prices.

Echoes from the Hives.

Chester, April 21st to May 1st.—Fairly good bee weather, but showery; May 1st to 10th, extremely cold, with occasional snow and hail showers. In some hives in this district bees are casting out brood; feeding absolutely necessary. The season is quite three weeks later than last.—CHAS. ROBERTS.

Cheadle, Staffordshire, May 11th.—Bees wintered well in this district, but to the present the spring has not been good, therefore breeding is rather backward. On Thursday last, the 7th inst., we had several snow-storms, and yesterday storms of hail.—THOMAS J. SMITH.

South Cornwall, May 12th.—An effort of memory might possibly recall another such cold spring as we are now having. Three fine days in the third week of April set our bees at work vigorously, and new honey was brought in. I ventured to distribute brood in two cases, and it has proved successful. Since then we have had an almost unbroken series of keen nights, and days not less severe in the shade. The sun at intervals has drawn our workers out, and they are certainly making way, but slowly. They do their best to gather from blackthorn, maple, sycamore, and beech; but there is not heat enough to produce much nectar, I fear. Nightly feeding goes on with eight hives out of sixteen. I *believe* all these sixteen have queens, but I am in a little doubt as to one. Three or four are weak; the others have a superabundance of old honey, which they do not seem to care for much when uncapped, but may be glad of to feed their numerous progeny if it is cold at the end of the month. Had the last fortnight been mild I think we should now be in advance of our usual condition; as matters are, I do not think we are behind it.—C. R. S.

Sutton, Surrey, May 13th.—During the first week of this month we have had cold and wet weather, many hives requiring assistances with the feeding bottle; but since Sunday, May 10th, there has been plenty of sunshine, and bees have been very busy on the apple-blossoms.—A POOR BUZZ BUZZ.

North Leicestershire.—Bees are making very little progress, the gain in numbers being nearly counterbalanced by the loss through the cold winds and snow. There is a good honey-flow just now from currant, gooseberry, cherry and pear trees, and dandelion is supplying abundance of pollen. Dry-sugar feeding is proving very successful, as well as economical, in time, trouble, and expense.—E. B.

County Fermanagh.—The spring is very late, and for the last few days the weather has been intensely cold—almost as cold as January. As I write (6th May) a vigorous shower is going on of sleet and snow outside. Even when there was no rain or snow, that is to say, for the three days preceding, the bees showed their appreciation of the state of things by remaining shut up closely. For three days not a single bee in any of my hives was seen outside the flight-holes; and this in May! I have just had a striking proof that 'bees do nothing invariably.' On the 28th of April I found in one of my hives five queen-cells sealed over. These I destroyed, all except one, which I removed to a queenless hive, where it hatched this morning. Now this production of queen-cells was against all bee-rules and all bee-precedent. For, in the first place, there was abundance of room. The hive is a Combination, holding eighteen frames, and the colony very small, barely covering four frames. In the second place, the queen is very young—not yet a year old. In the third place, the bees ought to have known that queens now are perfectly worthless in such a district, because there is not a drone, nor the colour of one, within five miles. And lastly, they ought to have known that so small a colony could not afford to send out a swarm, being barely able to support themselves.—S. L. B.

NOTICES TO CORRESPONDENTS & INQUIRERS.

B.—1. *Combs run over by Mice.*—If they only smell of mice, exposure to the air will set them right. If much nibbled, it might not be worth while to give them to the bees. Slight damage would soon be repaired. 2. *Using Old Foundation.*—You can remove the brittleness, and render it fit for use by hot water. Let it be hot to the hand. About one part of boiling to two of cold will be right. Just hold the sheets in the water for half a minute.

W. K. J.—1. *Replacing Unproductive Queen.*—Remove the old queen, but do not destroy any of the queen-cells. Let the strongest of the young queens reign by right of force. 2. *Stock damaged in Travelling.*—The future depends upon whether the young queens produced from the cells existing early in May became fertilised. If so, the stock will, no doubt, prosper. If not, it is queenless, and will die out.

W. F. A.—*Hiving Swarm in Bar-frame Hive.*—Remove some of the frames, and place the division-board against one wall of the hive. Cover the remainder of the frames with the quilt. Shoot the bees into the space between the remaining frames and the division-board, and gently bring the latter up to the frames, forcing the bees before it. Or you may place the hive on the ground, lay a sheet on the ground with the edge over the alighting-board, and kept down by some stones; throw the bees on the sheet in front of the entrance, and they will run in. In this case the frames should be previously arranged with the division-board in place and the quilt over all.

D. H. D.—1. *Time for Supering.*—It is worse than useless to put on supers before honey is to be had in the fields, and the weather becomes warm enough for bees to gather it. These conditions are rarely to be met with in this climate before the middle of May. By placing a rack of twenty-one sections upon your hive on the 1st of April you caused an upward current of air through the brood-nest, and injured your bees. Cold winds and frosty nights have prevented supering up to the present time, even in the case of the strongest colonies, in well-managed apiaries. 2. *Drones.*—The appearance of drones is no bad sign, but rather the contrary. Allow your super to remain, and when warm weather sets in drive the bees into it by moderately smoking them at the entrance.

W.—1. *Swarm-Box.*—A swarm-box to contain a 4-lb. swarm should be 14 in. × 14 in. × 10 in. inside dimensions. Holes, 4 in. square, should be cut in the top and bottom, and covered with perforated zinc. The bottom should be clamped outside, to allow the circulation of air beneath. It is well also to clamp the top for the same purpose. 2. *Food for Swarms.*—For a journey of not more than two days food is not required. A frame of comb-honey in a swarm-box would be a very dangerous addition, from its liability to breaking loose. Good's candy—a mixture of honey and finely-powdered sugar, kneaded into a stiff dough, and secured at one end of the box by wire-cloth—would be much safer. 3. *Introducing Artificial Swarm into Swarm-box.*—Yes; Root's system of using a funnel answers well. Ten inches diameter would be large enough for the upper part. For the cylinder below a diameter of 2 in. or $2\frac{1}{2}$ in., with 4 in. in length, would be sufficient. 4. *Time for making Artificial Swarms.*—Yes; the evening is the best time, and swarms should be despatched by night mail. 5. *Wired Foundation.*—Neighbour has always supplied us with wired foundation, which, however, is not Given's, but Van Deusen's. We never knew him to be without a supply on hand of the American makes.

H. W. H.—*Consumption of Stores.*—No; be con-

sumption of food is so great now, from the active breeding in strong colonies, that a large quantity of syrup will be consumed advantageously during the present inclement weather. There is little fear of syrup being stored and sealed as honey in cold and wet seasons. Moreover, in frame-hives, if such were the fact, it might easily be ascertained by inspection, and the quantity given reduced.

W. F. S.—*Enamel Cloth.*—Of the enclosed samples of enamel cloth, only one approaches in fineness of texture and pliability the imported American. This we return, together with a specimen of that we use, in order that you may compare the two. Two sizes are sold—17½ in × 17½ in., to cover twelve frames—and 17½ × 15 in., which covers ten frames. These, and the foundation fixers, may be obtained of Neighbour, who imports them; possibly of other importers also.

M. C. H.—*Abbott's Queen-cage.*—There is no necessity in this queen-cage of putting any bees along with the queen; Messrs. Abbott dissuade bee-keepers from this practice. The cage should not have been lifted out of the hive in releasing her, this should have been effected by drawing up the wire.

James W. Lloyd.—*Tunnel Entrance.*—There is no novelty in the model of tunnel entrance forwarded. It has frequently been tried by hive-makers, but has been discarded as having been found in practice objectionable. The objections to it are the ease with which it is stopped with dead bees in the winter, and the liability of the bees being suffocated in the summer, there being a difficulty in the ventilation.

Rev. J. Oakeley.—The report of the Gloucestershire B.K.A. was given on pages 96, 97.

Cranleigh.—1. *Putting on Sections.*—Place the crate on the frames with nothing under it. Put the quilt on the top of the sections. 2. *American Cloth.*—The samples of American cloth would all prove serviceable for your purpose. The one having the smoothest surface, No. 1, is to be preferred.

Feather Alum.—If sulphate of alum is asked for, the chemists will know what is required. It is not the alum used as medicine, which is a sulphate of alumina and ammonia. In chemical language it is called a hydrous sulphate of alumina. The word in the original German was 'Federweiss.'

W. H. H.—We have been informed that the iron wire mentioned is sold by Mr. Walton, Muskham, Newark.

Mrs. Malcolm.—Parker's Foundation Fixer may be procured from Messrs. Neighbour, Regent Street.

G. W. Stones, Mr. Roberts, Mr. Oxley, etc.—*Enamel cloth.*—Enamelled cloth may be had from Messrs. Neighbour, but it is procurable from any draper's shop having a stock of American cloths.

F. O. C.—*Fixing wired Foundation.*—Cut away the foundation from between the wires, sufficiently deep to leave length enough of wire to go through holes in the top bar. Fix the wires by driving pegs into the holes. The hive must stand level, so that the foundation hangs perpendicular to the sides, or it will be built out of the centre of the frames. It should be cut ¼ inch less than the inside depth of the frames. 2. *Driving.*—Open driving is the best, especially so if it is required to capture the queen. 3. *Diseased Bees.*—It is difficult to ascertain the nature of the disease from your description. Send us a piece of the comb containing some brood and we will endeavour to assist you.

J. Davies.—Get your *Journal* direct from Mr. Huckle, King's Langley, Herts. Mr. Cheshire's address is Avenue House, Acton. He will be pleased to have the queens you can spare.

J. Roberts.—The sample of sugar forwarded is Porto Rica, and would prove serviceable.

Ignoramus.—*Age of Queen.*—In a skep, or fixed comb-hive, it is impossible to obtain a sight of your queen, except by driving out the bees, which is not advisable. The determination of age, by appearance, even by a long-practised expert, is difficult. You can therefore only trust to the instinct of the bees to supersede the queen when she becomes useless through age. 2. *Kohler Process.*—The 'Kohler process' is given at length in a pamphlet on *Queen Introduction* by the Rev. G. Raynor, to be had of Mr. Huskle, King's Langley, price 3½*d.* post free. 3. *Bee Books.*—Cowan's *Bee-keepers' Guide-book.* His *Note-book* consists of a series of tables by which the bee-keeper can keep a record of all his observations and operations in the apiary. 4. *Foul Brood.*—Foul brood in skeps can only be discovered by turning up and thoroughly examining them, when the symptoms may be easily discovered by an expert. 5. *Advantages of joining an Association.*—By joining the Association you become entitled to the visits and advice of an expert. You obtain a sight of the *Bee Journal*, which is passed on to all members, and other advantages, respecting which you will do well to consult the Secretary of your County Association. 6. The bees forwarded were *Andrenæ fulvæ*, a description of which will be found in vol. xi., p. 35. 7. *Straw Skep.*—As you only found fifty or sixty bees in it, it is no doubt queenless. As there is so much honey remaining, keep the combs and put a swarm to them. 8. *Ants under a Bee-house.*—A broad band of chalk round the legs is said to keep ants from climbing up. So would a band of tar, or a rag bound round and wetted with oil.

W. Watson.—*Taking off Sections.*—You will find those nearest the centre are sealed first. Take these off, put the side ones in the centre, and put fresh ones at the sides. A swarm, either natural or artificial, generally checks the progress of sections. If a natural swarm issues return it to the stock hive.

Northumberland.—1. *Fixing Foundation.*—A saw-cut along the centre of the top-bar, which is opened and the edge of the sheet inserted, is the best way of fixing. 2. Whole sheets of foundation are not liable to give way if properly fixed. 3. *Treatment of Swarms for Heather Harvest.*—Double your swarms when they issue, furnish the frames with foundation, and encourage them by feeding if the weather is adverse, so that you have strong stocks to send to heather. 4. *Metal Ends.*—These are quite as good for wintering as entire wooden frames.

William W. Flemyng.—1. *Enamelled Cloth.*—See replies to W. F. S. and others. 2. *Foundation Fixer.*—There is no better way for fixing foundation in sections than by the foundation-fixer; the one used by you—Abbott's section foundation fixer—is highly to be commended.

J. Davies.—*Diseased Bees.*—The bees sent are filled with small bacilli, probably Gaytoni, but upon this point nothing definite can be stated without cultivation. This will be done, and then another report will be made upon them. I have received other bees containing the same bacillus during the past week; some through J. N. Bower, Esq., of Knowle, Birmingham. Here the symptoms are much the same as those you describe. See my account of Bacillus Gaytoni in a back number.—F. C.

Received from Dr. Stroud, of Port Elizabeth, Algoa Bay, copy of his pamphlet, with photographs; and a communication for the *Journal*. From D. A. Jones, of Beeton, Canada, several numbers of *The Canadian Bee Journal*. Some communications are held over till next issue, and several Replies to Queries will be forwarded by post.

Erratum.—In Mr. Simmins' paper on 'Management of Supers,' 6th line, read 'one-fourth of an inch.'

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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

[No. 171. VOL. XIII.] JUNE 1, 1885. [PUBLISHED FORTNIGHTLY.]

Editorial, Notices, &c.

JUDGING HONEY.

(*Continued from p.* 146.)

In judging comb-honey there are certain conditions, which will disqualify the exhibits, and so make more easy the labour of the judges. Opinions differ with regard to the relative importance of many of these conditions, but the remains of brood having been reared in any comb-honey is universally allowed to be a satisfactory reason for rejection. In some cases it is nearly impossible to keep a young and slender queen from going up into supers, in spite of the traditional $\frac{5}{16}$ths, and often it is very difficult to make the super cases just warm enough to induce the bees to take to them, and still not warm enough for brood-rearing. Again and again we have seen splendid supers of honey disqualified because there were the remains of a patch of brood; but with the sectional supers the presence of this disqualification simply testifies to the ignorance of the exhibitor.

Whether granulation should be a disqualification is a moot point, as certain varieties of honey granulate very quickly. If judged from the commercial view, no doubt it should be a disqualification, as the public will not buy granulated sections, just as in the same way they discard pure honey when granulated, in favour of any worthless corn-syrup. If the granulation was evidently of recent date, and other things being equal, the non-granulated would still have the preference in our opinion; but when the public awake to the fact that granulation is a sign of genuine honey, we think that there will be no difficulty in disposing of granulated sections; and it is of course evident that fermented honey, and honey-dew, should be at once disqualified, as also any sections that have been worked out by means of sugar syrup. Opinions again vary with regard to the bulging of sections, showing either that separators have not been used, or that they have not been deep enough. Some judges are extremely particular on this point, and invariably disqualify any sections showing this bulging, while others, with a greater show of reason, overlook such a defect, so long as it does not interfere with their being glazed or being packed without breaking the comb.

The above are the chief disqualifications, and any exhibits containing any of these defects having been removed, the more difficult task of deciding on the merits of those left in has yet to be settled. The sections should be fairly up to weight, at all events within an ounce or two. They should be well filled out, evenly sealed all over, and uniform in colour and appearance. The sealing should be of medium thickness, as a thinly-sealed section, though inviting enough on the exhibition-stand, will not bear carriage, as the honey will ooze out, and so spoil it for selling purposes.

One or more of the sections should be opened and the honey tasted, but it is not essential to spoil them by using a spoon or a shovel, and we would strongly advise the executive officers at all honey shows to provide the judges with toothpicks for testing comb-honey, as we have often seen sections ruthlessly spoiled, much to the disgust of their exhibitors. If, however, there is any doubt of the genuineness of an exhibit, a section should be emptied by the extractor, and the honey tested in the following way, as pointed out by Mr. Helmer:—'A solution of pure honey in water, when boiled with one of a salt of copper, which has been rendered caustic by the addition of potash, deposits a precipitate of red sub-oxide of copper, 100 parts of honey thus yielding about 132 parts of precipitate.' Cane-sugar yields no precipitate, or only in a lesser degree, while cane-sugar treated with sulphuric acid, or corn-syrup, throws down a precipitate with barium chloride, which honey or cane-sugar does not. A small quantity of these reagents, together with a few test-tubes and a spirit-lamp, should always be provided for the use of the judges.

The honey, unless in the heather honey class, should be creamy white, or of a pale-amber colour; though here, again, judges differ very widely, while some competent judges will not look at dark honey, others ignore the light honey in favour of dark honey, as the latter contend it has more flavour and body, which makes up for its uninviting appearance.

But as it is a very hackneyed expression, that it is impossible to legislate in advance of the moral (in this case the *honey*) sense of the public, we should undoubtedly give the preference to light, or good-coloured honey, though we should by no means disqualify dark honey, if of good flavour, but, on the contrary, might award it a high place in the list,

unless the other exhibits were superior in other points of excellence. The same difficulty meets us in deciding as to flavour, one of the most important points of excellence, and which, with many judges, and that rightly in our opinion, is considered all-important.

There is an amusing story told of a man, who tried to write an account of the Coliseum at Rome, without introducing any mention of 'butchered to make a Roman holiday.' He failed utterly; and so we confess we tried to steer clear of the old adage about difference of tastes, but Fate has been too much for us. No matter how artificial or mechanical we may try to make the judging of honey, we are certain to come into collision on this point, and we fail to see how uniformity can be obtained. None of us, who have any taste left, would prefer the abomination called pure run-honey, so common in the dark ages, and which gave a delightful flavour of wax, bee-bread, dead grubs, &c., with a dash of lucifer-matches, to the clean flavour of extracted honey from super sections; but when it comes to the relative importance of honey gathered from various flowers, we shrink aghast at trying to grapple with this superhuman task; and though we have decided opinions on the honey we prefer, we would not, in our wildest moments, imagine for one moment that every one else will agree with us. It goes without saying that the unsuccessful exhibitors will often, if not always, be dissatisfied with any judging, no matter how correct it may be in the opinion of experts; and the only way to get good judging is not by drawing up any artificial standard of rules, but by getting good judges, and by that we mean, those bee-keepers, or honey dealers, who have had large experience, and who are not warped by their adherence to any particular doctrine on this much-vexed question of judging honey.

USEFUL HINTS.

The inclemency of the weather during the month of May has proved fatal to many a good colony of bees, as may be exemplified by the following dialogue which occurred on the 25th ult. between ourselves and the 'Squire's' gardener:—*Gardener:* 'I've come, sir, to see whether you can tell me what be the matter with master's best stock of bees? They come out of the hive and die all around! The mouth of the hive is choked up with dead and dying bees, and it seems to me as they'll soon all be dead if we don't do somewhat.' *We:* 'Have you fed the bees?' *Gardener:* 'Lor! no, sir, not this time o' year sure*ly*!' *We:* 'Perhaps you have supered them, then?' *Gardener:* 'Why, yes, sir, a fortnight back; when the expert came, he told us to put the super on, as the bees was very strong; and so we did, and they went into it at once, and it was pretty nigh full o' bees, and Missis was expecting to have some sections ready by now.' *We:* 'My good man, the expert was wrong. Of course he could not foresee the cold weather—frosty nights, snow hailstorms, cold winds and rains, which have prevented the poor bees leaving their hive—but he ought to have said, "*wind and weather permitting!*"' By the super you have cooled down the hive, and, the stores being all consumed, your bees are chilled, and starved. Go home, and, having removed the super, put on the winter quilt, and feed copiously with warm syrup. Take out of the hive the outside frames and pour into them syrup. Collect the chilled and dying bees in a skep, sprinkle them with warm *thin* syrup, tie cheese-cloth over the mouth, and place the skep in a warm corner of the kitchen. In the morning many bees will have recovered, and will fly back to their hive on being released.'

The moral here is evident, and the case proves the correctness of the advice given in our columns of late, and which we now reiterate—'*During inclement weather feed all colonies, especially the strongest.*' It is not at all uncommon for bees to die of starvation in the month of June. We cannot make the weather, but we can provide against it. There is plenty of time yet for a splendid honey harvest, and '*nil desperandum*' should ever be the motto of the British bee-keeper. Many strong colonies which had made preparation for swarming, will have allowed the queen-cells to be destroyed; and it is quite likely, that, if supered at the right time, such colonies may not swarm at all. In such cases the drones have been already destroyed. Where the queens are aged and worn-out, they will be cast forth from the hives and the young queens will take their place, awaiting fecundation until the weather changes. When colonies which have been supered throw off swarms, pursue the plan recommended in our last.

Work in Apiary.—Watch carefully for swarms. In *swarming weather* the bees must never be left—no, not for five minutes—or swarms may be lost. A quick, intelligent boy—especially if bribed by sixpence for every swarm—will make the best of watchmen. If we are not greatly mistaken this will prove a *swarming* year. In our experience the old distich,—

> 'The bees *will* swarm in seasons *wet*,
> But in *dry* summers 'tis honey they get,'—

has always proved true; and in such seasons we have repeatedly had large swarms from hives in which not an ounce of honey had been stored. Dividing, of course, prevents natural swarming, but a swarm will often escape before division has been made. June is the chief month for practising nucleus-swarming and dividing. Keep the nuclei strong in bees. Imported queens may be readily introduced to nuclei, and if, when accepted, the nucleus, enlarged by additional combs, or foundation, be placed on the stand of a strong colony—the latter being removed—when bees are flying, and the nucleus queen caged for twenty-four hours a strong and prosperous colony will have been established.

Swarms by Rail will travel well and safely in a flat crowned skep, with a piece of canvas (cheese-cloth) sewed over the mouth, and a cord around it, box-fashion, the label being attached to the canvas addressed 'This side up! Live Bees! Care!' Ventilation through the crown is unnecessary. We prefer this plan to a swarm-box. Swarms may also travel securely in the frame-hives they are to occupy if the following precautions be taken:—Wired-

foundation in full-sheets, inserted in the saw-cut, lateral motion being prevented by transverse wires from end to end of the frames, a 'spaced-floor-board,' *i.e.* strips of wood nailed upon the floor-board and projecting upwards half an inch between the bottom bars to prevent any side-motion of the frames; a square frame of wood, covered with open canvas, placed over the frames, and screwed down at the four corners. Under these conditions we have repeatedly sent 4-lb. swarms on long railway journeys without a mishap; and it is a great convenience to a beginner to receive the swarm in the hive it is to occupy, and on the foundation to be drawn out. All that is required on arrival is to exchange the spaced floor-board for an ordinary one—to supply the place of the canvas-top by a sheet of enamel cloth—and to set up the swarm in the place it is to occupy. Colonies on combs, if not too heavily weighted with honey, may be sent on the same plan.

Beginners cannot do better than to purchase a cottager's swarm, and on the same evening transfer it to a frame-hive where it is intended to remain.

Supering.—Immediately, on a change of weather for the better, give populous colonies cases of sections—1-lb. in preference to any other size—for several years we have found the 2-lb. sections all but unsaleable, except at a much lower price. The white clover will soon be in bloom after the fine rains we have experienced, and, with warm weather, we may still hope for a bounteous harvest.

Feet Cages we have found useful in natural swarming. When the swarm seems restless and inclined to desert, or return, if the queen be placed in the cage, and the spikes of the cage pushed into the crown of the skep, inside, the swarm will remain contentedly. The same plan, in the case of more queens than one leaving with a swarm, will be found to succeed, the supernumerary queens being removed. In this case the disturbance arises from the royal battles which take place, and which often end in the maiming of both queens. When two large swarms unite and cluster together, each queen should be confined in a separate cage, and placed a distance of three or four feet apart from the other, when the bees will each go to their own queen. In this way we have separated three swarms which had united and formed a mass of about two bushels of bees.

Extracting.—There will not be much *sealed* honey for extraction during the early part of the month, but it is well to have all things in readiness. A friend reports to us that he is exchanging his 1-lb. glass honey bottles for others holding ¾-lb. only—that these latter will fetch the same price in the market as the 1-lb. jars. Small packages, both of comb and extracted honey, certainly appear to be most in demand at present; but, doubtless, fashion will change before long. At all events, we are bound to please our customers.

Hiving Swarms in frame-hives may be easily accomplished thus:—Provide a box—having neither top nor bottom—about 5 in. deep, exactly fitting the top of your hive. Into this, placed over your frame-hive, shake the swarm from the skep, and quickly throw a sheet over bees and all. The bees will speedily descend into the frames below, especially if they be well filled with foundation. In a few minutes the sheet may be withdrawn, the few stragglers brushed down with a feather, moistened with carbolic acid, the box removed, the quilt supplied, and the hive set up in position. This is best done in the evening, but it may be successfully performed at any time.

CERTIFICATE EXAMINATION.

The annual examination of candidates for certificates of the first and of the second class was held at the Gardens of the Royal Horticultural Society, South Kensington (now better known as the Inventories Exhibition) on Saturday, May 16th. The examiners present were T. W. Cowan, Esq. (chairman), the Rev. G. Raynor, and the Rev. Dr. Bartrum. Six candidates presented themselves for examination. All candidates seeking a first class, in accordance with the regulations, were required to deliver a lecture on some subject named by the examiners, and all without distinction were tested by an oral examination as well as on paper. The results will appear in the *Journal* in due course.

H.R.H. THE PRINCESS BEATRICE AND THE HANTS BEE-KEEPERS' ASSOCIATION.

It must have been a source of much gratification to all interested in bee-keeping to have noticed a slight paragraph in several of the daily papers mentioning that the Hants and Isle of Wight B. K. A. had presented to their President, H.R.H. the Princess Beatrice, a very beautiful brooch in the shape of a bee, as a mark of their esteem, on the occasion of H.R.H.'s forthcoming marriage. Through the kindness of the Secretary of the Association, E. H. Bellairs, Esq., we have been enabled to give a full description of this present in another column. We note specially this pleasing occurrence because we are in a position to state that the present has been highly appreciated as a token of loyalty, goodwill, and esteem, from the members of the Association. We feel assured that H.R.H., each time she may wear the loving token, will be reminded by it that industry, perseverance, and usefulness, are essential in every walk in life—amongst the exalted and the humble, the rich and the poor.

We beg heartily, on behalf of all bee-keepers, to congratulate the Association on their 'happy thought,' and on the very effective and successful manner in which they have carried it out.

MIDDLESEX BEE-KEEPERS' ASSOCIATION

We have been informed that this Association has received an accession to its strength and its importance by the Hon. and Rev. Henry Bligh having kindly consented to act as joint Secretary with Mr. Fox Kenworthy. We trust that this step will give a fresh impetus to many earnest bee-keepers in the society, and that it will soon take that place among the associations which its central

position, its wealth, and its multitudinous population, entitle it to assume. Mr. Fewtrell, of Reading, has recently been employed as expert to the Association, and has inspected the hives throughout the county, his visiting tour has been very successful, and has infused new energy into the members.

LINCOLNSHIRE AGRICULTURAL SOCIETY AT GREAT GRIMSBY.

As intimated in a former issue, we now publish in our advertisement columns the full Schedule of Prizes for the bee department at the Lincolnshire Agricultural Society meeting, which will be held at Great Grimsby on the 29th, 30th, and 31st of July. It cannot but be satisfactory to the promoters of bee-keeping to find these County Agricultural Societies so ably assisting in the work; and we do not doubt but the Lincolnshire Agricultural Society will have that hearty recognition of bee-keepers they so well merit, and that we shall have the pleasure of putting on record another successful meeting, similar to those of previous years.

HANTS BEE-KEEPERS' ASSOCIATION.

In another column will be found an advertisement of an important exhibition, to be held under the auspices of this Association at Southampton, on June 23, 24, 25, and 26, in connexion with the annual Show of the Royal Counties Agricultural Society, which has been fixed this year to be held at that place. Prizes to the value of about 20*l.* will be offered; and as this Show is one of the important events of the year to agriculturists, being largely attended by visitors from all parts of Great Britain, we hope a full measure of success will attend the earnest labours of the Hants Association. As a honey exhibition it will probably be one of the earliest of the year, so that a very favourable opportunity is offered to those bee-keepers who are first in the field with their honey crop.

HERTS BEE-KEEPERS' ASSOCIATION.

The Hertfordshire Agricultural Society are, we are pleased to note, showing their appreciation of apiculture by offering, at their forthcoming show at Hadfield on July 9, prizes for honey and bee appliances to the amount of 10*l.* 10*s.*

The third Quarterly Conference of the Hertford district of the Association was held in the Town Hall, Hertford, on Tuesday last, May 19th, of which we hope to give a fuller account in our next.

MATLOCK BATH FLORAL AND HORTICULTURAL SOCIETY.

The fourteenth exhibition of this society will be held in the Pavilion, Matlock Bath, on August 8th. With a hope that the cottagers who are members of this society may be stimulated to become bee-keepers, a special prize has been offered by Messrs. John Evans and A. Clark; this consists of a bar-frame hive and a stock of bees, valued at 35*s.*; the condition appended to this prize is that the winner must give an undertaking that he will offer the swarm from the stock of bees as a prize to be competed for at the next year's show. We draw attention to the above in the hope that the suggestion conveyed by this special prize may stimulate other bee-keepers to try the experiment in their respective localities, so that the cottagers there may be induced to take an interest in bee-keeping.

ASSOCIATIONS.

HANTS AND ISLE OF WIGHT BEE-KEEPERS' ASSOCIATION.

At the annual general meeting of this Association, held last February, the Honorary Secretary announced that Louisa Marchioness of Waterford had interested herself in a scheme to raise a fund to purchase a wedding present for the President of the Association, H. R. H. the Princess Beatrice. The Vice-presidents were applied to, and they very generally responded, and in pursuance of the expressed wish of the general meeting the Hon. Secretary had issued invitations to the members to subscribe. The result was most gratifying. Out of a total of 200 members eighty-seven had responded, amongst whom were many artisans and cottagers, and notwithstanding a special request 'that donations should not in any case exceed in amount the annual subscriptions,' a grand total of 55*l.* 7*s.* 3*d.* was sent in.

A *diamond Bee* was decided upon, and a design prepared by the Hon. Mrs. Boyle (better known perhaps as E. V. B.), the work being entrusted to Mr. Emanuel, of Albemarle Street. Each donor to the fund, which has been called the 'H. and I. W. B. K. A. President Fund,' has been presented with a card printed in gold as follows:—

A Drawing of the Diamond Bee presented by the Vice-presidents and Members of the Hants and Isle of Wight Bee-keepers' Association to their President, H.R.H. the Princess Beatrice, upon the occasion of her Marriage, 1885.

In our next issue we hope to give a full list of the subscribers. The following letter has been received from the Princess by Lady Waterford:—

Windsor Castle, May 7th, 1885.

DEAR LADY WATERFORD,—I hasten to express to you, and through you to the other members of the Hampshire and Isle of Wight Bee Association, my warmest thanks for the charming and appropriate present you have sent me for my approaching marriage. I am deeply touched by this unexpected proof of your kind interest and good wishes for me.—Believe me, dear Lady Waterford, yours sincerely, BEATRICE.

WARWICKSHIRE BEE-KEEPERS' ASSOCIATION.

The annual meeting of the Warwickshire Bee-keepers' Association was held on Thursday, at the Grand Hotel, Colmore Row. Mr. Arthur Hodgson (Mayor of Stratford-on-Avon) presided; and there was a large attendance. Letters of apology for non-attendance were received

from Lord Leigh, the Rev. Canon Evans, Colonel Caldicott, and others.—The Chairman said he was delighted to preside over that meeting, for he was perfectly satisfied that their Association was doing a vast amount of good. They had to a very large extent, in connexion with other associations which had been formed throughout the United Kingdom, greatly improved bee-culture. The straw skeps were gradually becoming obsolete, and they were making room for hives of a very improved character.

The fifth annual report of the Committee recorded the continued success of the Association. The number of members continued to steadily increase, being at the close of the year 351. Regret was expressed at the loss of two Vice-presidents during the year—namely, the Marquis of Hertford and the Hon. G. H. C. Leigh, M.P., who were very much interested in the work of the Association. The statement of accounts showed that the receipts, including a balance of 84*l.* 7*s.* 5*d.*, had been 196*l.* 7*s.* 11*d.*, and after paying all expenses there was a balance in hand of 55*l.* 15*s.* 2*d.* The Chairman moved the adoption of the report, and it was carried.

Mr. Gill proposed the re-election of the President (Lord Leigh) and the Vice-presidents; and that a vote of thanks be given to them for their past patronage and support.—Mr. Hughes seconded the motion, and it was passed.

A vote of thanks was accorded to the Committee, to the hon. treasurer and auditors, and to the hon. secretary (Mr. J. N. Bower), and the assistant secretary (Mr. J. R. Ingerthorpe) for their past services, all of whom were re-elected.

Mr. F. Cheshire, of London, delivered a lecture upon 'The Wonders of the Beehive.' Between 200 and 300 persons were present.

At the close of the discussion the ballot for three hives took place, which hives were won by Mr. A. H. Stanbury, Hall Green, Birmingham; Mrs. Houghton, Coventry; and Mr. E. Haywood, Fazeley, Tamworth.

The Association has grown very rapidly, and continues to do so.

IRISH BEE-KEEPERS' ASSOCIATION.

The annual general meeting was held at 36 Westmoreland Street, on the 9th ult., in the rooms of the Society for the Prevention of Cruelty to Animals. Present—Miss Violet Knight, Rev. Canon Proctor, Messrs. Thomas Smith, J. K. Millner, J. M. Simpson, Henry Chenevix, E. D'Olier, jun., S. K. Twigg, Robert Sproule, W. J. Stanford, S. C. Gavaeau, J. Edmondson, Chas. Frederick Knight, M.D., hon. sec., and others. The Rev. Canon Proctor in the chair.

The minutes of the last annual general meeting were read and confirmed. The report and balance-sheet issued for the year 1884 were received and adopted, and a vote of thanks passed to the auditors, Messrs. E. E. Davidson, and E. D'Olier, jun. A vote of thanks to the Society for the Prevention of Cruelty to Animals for the gratuitous use of their rooms for committee and other meetings, was passed unanimously. The following officers were appointed for 1885:—President, Lord Ardilaun; Vice-presidents, Hon. Richard Bellew and Rev. Canon Proctor; Hon. Treasurer, Sir J. W. MacKay, 23 Upper Sackville Street, Dublin; Hon. Secretary, Charles Frederick Knight, M.D., 82 Harcourt Street, Dublin. Committee:—Messrs. R. Sproule, J. Edmondson, E. D'Olier, jun., W. J. Bramley, J. P. Allen, S. C. Gavaeau, S. K. Twigg, J. M. Gillies, J. Kelsall, F. F. Collins, Rev. P. Kavanagh, Captain L. Riall, Rev. J. M. Aldridge, Rev. Canon Bagot, and Rev. Thomas Lindsay.

A vote of thanks was passed to the scrutineers of the voting papers, Messrs. Chenevix and D'Olier, who kindly consented to act as scrutineers for 1885–86 with Mr. Thomas Smith.

Mr. M. H. Read moved: 'That attractive labels for honey bottles and sections be issued to members of the Association at a price which would just defray cost of production.' The matter was referred to the incoming committee to report to the next general meeting.—Mrs. Knight moved: 'That leaflets be issued from time to time to members giving short rules for their guidance, mentioning new inventions, and that a special fund be started, called the "Cottiers' Fund," to provide hives for cottagers, the price of the hives obtained to be repaid by small instalments through members who shall be responsible to the Association for the amount.' Passed unanimously.

Moved by Dr. Knight and resolved: 'That in future members who are unable to be present at a general meeting may discuss and state their views of matters on the agenda paper by letter addressed to the Honorary Secretary.'—Mr. Edmondson moved: 'That the time and place of holding the spring show be changed.' After some discussion it was resolved to continue the present arrangements.—Dr. Knight moved: 'That district representatives of the Association be appointed by the incoming committee, as may be found advisable.' Carried unanimously.—Mr. Duffin moved: 'That statistics of the number of stocks of bees and their produce be collected from Irish bee-keepers, and that the hon. sec. be requested to communicate with Dr. Grimshaw, Registrar General, asking him to have these statistics included in the annual agricultural returns.' Passed.—The Rev. Canon Proctor having to leave, the chair was taken by Henry Chenevix, Esq.—Moved by Dr. Knight, and unanimously resolved: 'That the incoming committee shall have power to appoint an expert to visit members twice a-year; and that a special subscription list, called the "Expert Fund," be now opened for that purpose.' Also, 'That a circular be issued to clergymen and other gentlemen in public positions requesting them to become patrons and members, in order that they may forward the interests of the Association, and help to spread a knowledge of advanced bee-keeping amongst Irish cottagers.'—Moved by Mr. Sproule and carried: 'That the incoming committee be requested to take steps for holding monthly meetings, open to members generally, for the purpose of having papers read, discussing same, exhibiting new inventions, and other matters useful for instruction in the management of bees.'—Mr. Sproule moved: 'That the marked thanks of the Association be accorded to the Honorary Secretary for the work done on behalf of the Association during the past year.' Carried by acclamation.—A vote of thanks was unanimously passed to the press for opening their columns to apiarians and for the editorial assistance given to the Association.

A cordial vote of thanks to the Chairman terminated the proceedings.

LEICESTERSHIRE BEE-KEEPERS' ASSOCIATION.

A lecture on bees and bee-keeping was delivered by Mr. Walter S. Pridmore at 'The Three Swans' Hotel, Market Harborough, on May 12th. The lecturer was very successful in keeping up an unflagging interest in his subject.

After the lecture some time was spent in examining the hives and bee-appliances which Mr. Pridmore had brought for illustration. Several new members joined the Association.—E. B.

SHROPSHIRE ASSOCIATION.—REPORT OF EXPERT'S SPRING TOUR, MAY, 1885.

Commenced my journey on Tuesday morning, calling first at Basehurch, on through Ryton, Llanymynech, Oswestry, Ellesmere, Overton, back to Shrewsbury, then taking Berrington, Ateham, Wroclwardine; next day

Hope near Minsterley, Stretton Heath, Hanwood, and Stapleton, finishing at 'Craven Arms.' Examined hives in all places except one or two where the owners were absent, and had left no instructions for them to be examined. Found, on the whole, stocks fairly strong, considering the cold east winds that have prevailed during the early spring, in some cases the hives having a quantity of honey left from last year. The mortality amongst members' hives has been small. Examined about fifty bar-frame hives and about ten skeps. I found one very common tendency to allow too much room for wintering, and an anxiety to give too much space and more frames than the bees could cover at the time, thus checking to some extent the breeding. But on the whole a very satisfactory condition of hives throughout. Though a magnificent district for bees, unfortunately few bees are kept by the cottagers, and many empty stalls and bee-houses to be seen.—C. Brown, *Expert B.B.K.A.*

HUNTINGDONSHIRE BEE-KEEPERS' ASSOCIATION.

A committee meeting of the Huntingdonshire B.K.A. was held at the Fountain Hotel, Huntingdon, on Saturday, May 2nd, for the purpose of fixing the place and date of the annual meeting and revising the prize schedule. As the chairman, A. W. Marshall, Esq., and other members of the committee were unable to be present, the attendance was small. The chair was taken by J. Linton, Esq.

The Honorary Secretary reported that the Chairman had written to him regretting his inability to be present, as he was leaving home, and promising to repeat his previous generous donations to the prize fund. It was regretted that not more than about half-a-dozen members had, in reply to a notice, requested the attendance of a district adviser. Many members have, however, been visited by the district advisers in different parts of the county. It was unanimously decided that the annual show of bees and bee products should be held at St. Neots, in connexion with the Horticultural Society's Show on Bank Holiday, August 3rd, and that the Prize Schedule, as amended, should be printed and circulated by the end of May. Although there are in the county experts, certificated and non-certificated, of acknowledged ability, the Committee were unanimous in their decision to appoint an entire stranger to take charge of the bee-tent, particularly as it has been decided that the annual show will be the only one held this year. The hon. sec. was instructed to arrange for holding the annual show, and endeavour to secure the services of Mr. Baldwin as expert.—C. N. White, *Hon. Sec.*

Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of April, 1885, amounted to 9939*l.* [From a private Return sent by the Principal, Statistical Department, H.M. Customs, to E. H. Bellairs, Wingfield, Christchurch.]

ANOTHER METHOD OF QUEEN INTRODUCTION.

Many bee-keepers will be glad to learn that still another process of introduction has been discovered, which promises to be successful in every case, and in all hands.

Finding that all did not succeed with my 'comb method' so well as my own success led me to expect, I determined that if by any means possible I would not rest until I had found a plan which should answer every time with every one who cared to follow it.

Thinking the matter over, about two years since I decided to confine a nucleus made up for the occasion, and then inserted a fertile queen, which was accepted. Other trials proved equally successful, and it will be admitted that the process is worth trying when I state that throughout the past and present season I have sent out a large number of queens, either with half-a-pound of bees, a three-frame nucleus, or with swarms; and most of them had never seen the bees they were to travel with until the moment before the package was closed, and no animosity has been shown them in a single case. Hence it is a fact that while under the excitement of *confinement* bees will *always* accept a queen. The many who have hitherto hesitated to buy valuable queens for fear of losing them, may now cast away all fear, if they will only proceed as now advised.

When queens are expected, make up your nuclei, each consisting of one frame of hatching brood and adhering bees, with as many more bees as will cover a comb, and one comb of stores on either side of that with brood; confine them under perforated zinc, giving ample ventilation, but not enough to cause chill, and as soon as the bees are in an uproar (having found themselves confined and at the same time queenless) your queen can be inserted under one corner of the quilt, first driving the bees back with a very little smoke. Let them remain confined in a cool, darkened room for three days, when they may be stood out where needed, and there will then be no danger of any of the bees going back to their old hive, as some will do if liberated earlier, when they are sure to be slain. Indeed if bees be taken from any colony and confined for only five minutes, and then allowed to fly home, not one will be allowed to enter what was a few minutes since their own hive. Therefore it should be borne in mind that bees recently confined can never be united to those having full liberty, and the former should be allowed a few days' flight before any such operation is attempted.

When the nuclei are stood out the combs will be found to contain a large number of eggs recently laid by the new queen, therefore no time whatever has been lost through confinement. By giving other frames of hatching brood occasionally such substantial nuclei may soon be worked up to a strong colony, and no risk whatever has been incurred by the queen.

As I have always pointed out, it is by far the best policy to start valuable imported queens in nuclei, and allow them to recover themselves gradually, as it frequently happens that when given at once to a strong colony, being forced to excessive exertions to keep the combs stocked with eggs, the strain is too great for them, and death is the result. The confinement during transit may not be of long duration, but it should be remembered that just previously the queen had probably been laying extensively, and then quite suddenly she receives a severe shock by being shut up with a few bees, and considering this every care should be taken by the purchaser not to cause further injury by going to the other extreme immediately he gets her.

Virgin queens may be given to nuclei just made up in the same way, but these I do not liberate, as a rule, until the fifth day, as then there is not so much time for them to fly and get lost before they are really old enough to become fertilised. In either case the nucleus should be provided with thin syrup while shut up indoors.

My own nucleus hives are similar to my stock hives, having a recess at front and back, but containing only three frames. To adapt them to this process of intro-

duction, the front recess is covered with fine perforated zinc down to about half-an-inch from the alighting-board, where a slip of wood is inserted to let the bees out or not as desired, while it in no way prevents them parading throughout the whole front surface of the nucleus hive under the zinc.

When nuclei are made up as herein stated the usual one-and-a-half inch entrance gives all ventilation necessary, but if it is desired to start a stronger lot (which for the purpose is quite unnecessary) more air must be allowed by perforated zinc at the top.

So far as the safety of the queens is concerned those nuclei with fertile queens might be given their liberty the same evening, and those with unfertile queens early the following morning, but I think I have plainly shown that nothing is to be gained by so doing.

The facts relating to this method of introducing queens to nuclei at the time of establishing the same, was first mentioned by me in the *American Bee Journal* for January 14th, 1885, and further experience fully justifies me in claiming for it all the advantages I have mentioned.—S. SIMMINS, *Rottingdean, near Brighton.*

QUEEN INTRODUCTION.

I have for two seasons successfully introduced queens on Simmins' plan, using a little smoke. I have also joined bees the same way, but not always without loss. Never lost a queen with the method: what I have done has been with bees in my own apiary. If I had strange bees from anywhere, I should keep them to themselves a short time before joining. I should never think of getting Ligurian or other queens, and put them direct into the stock, I think that would be courting disaster. One way I have tried to join Ligurian queens (imported ones) is to get a strong stock with plenty of ripe brood in, shake all bees off three or four combs, except young bees, put your combs in a nucleus hive, put in queen, take hive indoors, keep it at a fair temperature all night; next day if enough bees have hatched out to keep one comb of brood warm, put back spare combs to stock hive; if not enough bees out keep indoors another night, the young bees will not interfere with the queen; feed the lot until bees appear for work, then join to a good stock, or build the small lot up; not so much risk with queen, but it is a longer job.—J. DAVIES.

FOUL BROOD.

If Mr. Arthur B. Johnston has used faultless carbolic acid in his treatment of foul brood, the hive bacillus of Mr. Cheshire is likely to turn out as harmless as the comma-shaped cholera bacillus of Dr. Koch, which Drs. Klein and Gibbes, after careful investigation, pronounced incapable of producing effect and not peculiar to cholera, and not behaving differently from other putrefactive organisms.

But Mr. Johnston must perceive that all experiments are open to challenge in which *the guaranteed phenol* has not been employed.

Calvert's No. 1 carbolic acid is quite as efficient as that prepared under the guarantee of Mr. Cheshire; yet failure with it to cure a virulently diseased hive does not dispose of objections.—QUESTIONER.

BACILLUS ALVEI AND PHENOL.

The failure of Mr. Johnson and some others to cure disease amongst their bees by the use of phenol, I much regret, since all my very serious expenditure of time and money has but the one object of enabling bee-keepers to rid their apiaries of this evil, beside which all others pale. I intend hereafter taking up this question at length, and so now content myself by saying that *Bacillus alvei* is easily, readily, and absolutely, cured by a proper administration of phenol, and that I make this statement again without the smallest qualification or reserve. How then can these failures be accounted for? In one of two ways; either that the remedy is not properly applied (and often, even in the hands of the intelligent, it has not been), or that there exists another bacillus disease which is not amenable to treatment. I am inclined, at present, to doubt the existence of such a disease, since all the forms coming before me last year, save one, were evidently identical; and in this one case Mr. Cheyne and myself concluded, after a cultivation, that it was only a temporary variation of the Alvei; but until experiments, now in progress, are complete, I desire to abstain from any assertion. I cannot help taking exception to the tone of one line in Mr. Johnson's letter. He speaks of what I have led the readers of the *British Bee Journal* during the past year to believe, in a connexion which is not agreeable. Mr. Johnson hardly realises, I am sure, the tremendous labour through which I have passed, and the very heavy pecuniary loss I have willingly borne in this matter, or he would have felt that I had higher motives than any that could have made me colour anything.

If Mr. Johnson will send me some of his combs (not bees) containing dead larvæ we will try to unravel the mystery, and I will ruin two stocks by inoculating them and letting the disease run riot in order that I may have subjects for examination and experiment. This whole question is a serious, as well as an exceedingly difficult and involved, one, and Mr. Johnson will, I am sure, gladly concede that, due to my efforts, our ideas of bee diseases have undergone a revolution. The so-called foul brood is really a disease primarily of the adult bees, and only incidentally of the larvæ. Let us work together, striving to accumulate evidence and unravel the truth. If phenol fail, I will be amongst the first, not only to admit it, but to proclaim it. I and others have, however, cured far too many desperate cases with it to enable me to doubt for an instant its full power to grapple with *Bacillus alvei*; but if this be not Mr. Johnson's enemy, let us strive together to discover the means by which that which is, may be made, an enemy, no longer.—FRANK R. CHESHIRE, *Avenue House, Acton, W.*

IS PHENOL A CURE FOR FOUL BROOD?

I have read Mr. Arthur B. Johnson's letter carefully, and I can answer the question above with all confidence, and say without hesitation or fear, 'Cheshire's cure for foul brood' is a perfect cure. You will remember that I reported last year losing ten hives out of twelve and that I adopted the order of instruction given with Mr. Cheshire's 'Cure,' and I had gratifying results in the autumn and promised to let you know how I got along in the spring. Well, sir, the disease spread into other hives, and in November I had five under treatment, and could not positively say I had eradicated the pest when I closed up for winter.

In March I opened my hives and found that three queens were dead, one had a queen drone breeder, two without. The two hives that were worst had queens in, they had been longer under treatment: one of these showed signs of foul brood. I now began to treat again for the disease, and to-day I have not a single comb tainted, and bees in all the cells affected last autumn. I can thus speak for its efficacy.

From Mr. Johnson's letter I gather that he has been purchasing phenol and mixing it himself, but why not give the proper guaranteed quantity and quality? No one was ever in greater despair than I was, to see all my combs,—about eighty, beautiful and straight,—all one mass of stinking corruption. These were all boiled down, but had I known of the phenol cure I could have saved above half. I no longer fear this loathsome disease, but I don't wish for its return.

It is quite useless Mr. Johnson recommending bee-keepers, who find the scourge to destroy their bees and burn the hives and combs and everything about them. It's all nonsense, and I may be pardoned in speaking so bold, because I have realised its value as a purifier. I am fairly well known, and it is not through any connexion with Mr. Cheshire that I write this testimony. It is to encourage the poor industrious soul who loses his love for the bee and despairs in bee-keeping because he sees such a scourge ravaging his apiary. Let him take courage; there is a remedy in the Cheshire cure, if he will give it a fair trial; and if he lives within nine miles of Winsford I will help him if he will apply to me. My experience of it is such as to warrant its recognition anywhere. I have found its presence in several places and told them of the cure. I also saw a hive badly tainted presented at a show last year for driving, and oh, how I trembled when I saw my bees robbing it; I had only just then read of the cure and did not know its value.

I doubt not Mr. Johnson has done his best with the materials he has had, but let him isolate his bees,—or not just as he likes,—and whilst they are at the height of their breeding—this is the proper time. Let him feed with syrup diluted with 'Cheshire Cure for foul brood,' and there is no question about the destruction of the pest.—THE STATIONMASTER, *Winsford, May 15th.*

JUDGING AT SHOWS.

I have just been looking through this year's *Journals* and part of last, and was struck with the number of letters on this point. As I am only a honey exhibitor I shall not speak about other things. I have Mr. Seager's paper before me; he says, 'This is not a question to be settled off-hand;' true, but it is time a settlement was made. He refers in the next paragraph and says an exhibitor said to him, 'If I had known what the judges wanted I could have shown a much better lot than that which took the prize;'—here we have proof of the necessity of a code of standard points. Thus we see its necessity, and the proper method now to follow is to decide the points and fix a maximum number of marks for each point.

The paper was fairly good, but lacked suggestions, and instead of boldly proclaiming a code of standard points it left the matter where it was taken up.

The shows are now commencing, it is important that the matter should be decided for the guidance of exhibitors and judges, and I again beg to ask the Committee of the B. B. K. A. to come to some arrangement for the current year with a view to revision at the close of the season.

The March issue of the *Record* contains a very interesting paper written by Mr. W. Broughton Carr, who has been sufficiently bold to fix a code of points as follows:—Flavour, 8 marks; colour, 6; consistency, or specific gravity, 6; uniformity, 3; condition, 3; aroma, 2; 'get-up,' 2. I shall be happy to comply with this code for extracted honey, but we require also a code for other classes of honey.—GEO. STOCKS, *Winsford, May 15th.*

LIGURIANS—HYBRIDS—DEMONS.

Your correspondent Mr. C. Pollard, touches upon a sore point in my experience when he speaks of hybrids as being 'perfect demons to manage;' and I don't know whether he is so far wrong when he says that eventually these foreign bees will be the downfall of hundreds of bee-keepers. That their irritability will make much difference to those who make bee-keeping a serious business is not very likely, but to the agricultural labourer, the country gentleman, and the lady amateur, it will make all the difference in the world. In my own village, an old woman, for whom I have great regard, told me she had been stung more often and more vigorously last summer than during the whole of her life. She does not know the reason,—but I do. Perhaps not very wisely, I told her; and I think it very improbable that she will ever give half a sovereign for a foreign bee, ever become a member of our County Association, or approve of modern methods and scientific apiculture.

Again the vicar of a neighbouring parish obtained a swarm of hybrids to inhabit a forty-shilling hive. It was charmingly placed under a wire arbour, over which trailed in abundance a lovely clematis and a fragrant rose, and which was obtained for the purpose of affording a local habitation for the palatial hive. In less than a week this worthy divine bid a sorrowful farewell to his garden with a swollen nose and a disfigured eye. During the dead of night only would he venture into that garden with impunity. At last the crisis came. Though it was a good place, the gardener and the boy gave notice. They were attached and faithful servants, but they were rapidly getting beyond the recognition of their respective friends and relatives, and felt that any fate or the sundering of any ties was preferable to becoming in their bodies walking Ligurian sting-cushions. That arbour is now vacant and the hum of the bees is not heard round the aforesaid clematis and rose, and the life of the vicar, the gardener, and the boy, pursues its unruffled and tranquil way. I might relate other instances, but instead I will give my own experience. Some three or four years ago, when I lived in another part of the country, I bought two pure imported Ligurians. I anticipated a pleasant time as I had been reading in Cook's *Manual* of the *gentle* Ligurians. Soon came the first swarm, the largest I had ever seen, and with some pride, I sent over to the good woman near by, who had kept bees all her life, to come and see, and assist in the hiving. She came, and was astonished at the colour and size of the swarm, but ten times more so at the number of stings she received.

Poor Mrs. Redding! Well do I remember our conference that evening, you bandaged and swollen, you would not wear a veil, bees never stung you, you had kept them all your life. Ah, yes! but you had never kept gentle Ligurians. I then learnt for the first time the advantage of tucking my trousers into my socks. Well, Mr. Editor, I did not give up bee-keeping, but as rapidly as possible reverted to the native stock. This summer I am sufficiently black. Am I satisfied? Of course not. I again feel a hankering for the gentle Ligurians. I wrote the other day to three apiarians, told them how I had found my Ligurians extremely difficult to handle, and of a temper indescribably ferocious. I was informed by the three that my experience differed from theirs, Mr. Simmins stating that only upon one occasion did he find the progeny of a Ligurian queen exhibiting the characteristics described. I have ordered three queens from three distinct vendors residing in different counties. Two I have received and successfully introduced. If their progeny are gentle, I shall have no difficulty in Ligurianising my whole apiary, and keeping them pure. If they should prove otherwise, I shall give up Ligurians finally, as too frequent *demon*strations spoil the pleasure of bee-keeping. Your readers shall know my fate. Life is full of illusions, and I am prepared for the worst. Of course I may not have received pure Ligurians in my former experience, though I bought and paid for them as such.—H. J. W.

'THE LABOURS OF A PARSON'S LIFE.'

So a clergyman has little else to do but look after beehives: p. 107. I had just begun bee-keeping and thought to take in your *Journal*, but, in a borrowed number, came across the above statement, which very nearly made me fling up the whole thing in disgust; for, I argued, if we clergy who keep bees receive this measure from the *Bee Journal*, what measure shall we

get from the majority of our parishioners who care nothing for bees or the latest fashion in hives? But is your statement true? Take the country parson, for he is the most likely man to go in for bee-keeping, and I suppose also the most likely man to have little else to do. For amusements,—there are plenty to compete with bee-keeping. Gardening: most country parsons have gardens; cricket: there are such things as village cricket clubs and lawn tennis: lots of parsons play at these; fishing: a regular parsonic pursuit; shooting: most country parsons know a partridge from a peewit; concerts, parties, &c.; so that even a country clergyman who did not keep bees might find *a good many* other things to do. And, seriously, he has his parochial duties, which are not so light as your paper would make out. The Ordination Service,—if you will only look at it,—gives a tolerable list. I won't parade the labours of a parson's life; he has his work, and I will only say that if he does *half* of it, he has plenty to do besides looking after bees. But if he does take up bee-keeping for the sake of his poorer neighbours, he deserves better measure than you have given him, if, as I suppose, you have the true interest of bee-keeping at heart.

I have seen country parsons at bee-shows labouring to instruct those who come to the bee-tents. 'Little else to do' is a hard verdict on such men, and one you ought to have the grace to retract.—R. S. R. *Amport, Andover.*

[The writer of the article referred to wishes us to state that it was not his intention to cast any reflection upon 'country clergymen,' but merely quoted them as a class amongst whom there are many who have sufficient leisure at their disposal to take up bee-keeping 'as a hobby or as a means of civilising their neighbours.' He also begs us to say that he is sorry if he has unintentionally given any offence by what he wrote.—Ed.]

HONEY-YIELDING TREES.

The arrival of your *Journal* reminds me that I wish to report an observation I made here last month. It is usually stated that a bee only gathers honey from one species of flower during a single flight, and I have no reason to doubt that this is so during the great honey-season; but in the early spring, when honey-producing flowers are rare, one would naturally suppose that bees might be less particular. This supposition I was enabled to verify thus: Having a large pot of *Triteleia uniflora* before my front door, and this being the only group of flowers of the kind in the neighbourhood, I saw a bee one day visit two blossoms of the Triteleia and suck honey from them, and then pass on to a patch of Arabis and gather a further supply from that flower. While I am writing I must express my surprise at the papers frequently appearing in the *Journal* on the subject of bee-pasture. The *trees* seem so often neglected in the treatment of this subject. I suppose the willows, fruit trees and bushes, sycamores, limes and Spanish chestnuts, give five-sixths of the honey I get here in the north-west of Middlesex. One full-grown sycamore is equivalent to half an acre of clover. I think more attention should be drawn to the trees of a neighbourhood in deciding whether a locality is suited for an apiary or not.—Fred. Stock, *Burton Bank, Mill Hill, N.W., May 19th.*

CAMBRIDGESHIRE BEE-KEEPERS' ASSOCIATION.

When I wrote my letter in your issue of April 15th I did not wish to sting any one, but I quite expected to cause a little 'buzzing.' Now I don't desire to provoke any discussion, but I must still think had we bee-keepers in this part of the county been left to the mercy of the Cambridgeshire B. K. A. we should not have been very forward in the art of modern bee-keeping; so far we have plodded along and helped others as best we could. During last season Mr. Bothamley (a bee enthusiast) and I acted as (may I call it) district advisers to several in our neighbourhood who had recently commenced bee-keeping on the humane system; and during the winter I obtained some slides from Messrs. Abbott Bros. for several weeks, for the use of which they very kindly charged me only a nominal sum; and with my large lime-light lantern we gave several lectures on bees and bee-keeping and made several converts, including five ladies.

Mr. Howard of Holme and I also gave lectures in his village and in two others. I am always willing to do all I can to further the object, but one cannot quite give up all their time; and I still think if the County Association had only made up their minds to have come and taken an interest in the coming County Agricultural Show here in July, they would have been better off both numerically and financially. I cannot see that they would have been anything out of pocket, as the Agricultural Society would have met them in the matter of expenses. They now have generously offered five guineas for prizes for honey and hives, and a lady in Wisbech has given two pounds ten; that will be a good start, and other subscriptions might have been collected as there are now a great many bee-keepers in and around the neighbourhood who would have willingly subscribed to the prizes, and no doubt would have become members of the Association.

There is a small committee formed here to assist the secretaries of the Agricultural Society to frame the schedule and help to get a good show of honey, hives, &c., and will no doubt avail themselves of the kind offer of the Association to have their bee-tent for manipulating.—J. Dann, *Wisbech, May 22nd.*

BEES AND RHODODENDRONS.

Mr. Garratt, in his remarks on Mr. Griffin's paper, viz., 'Honey and Wax,' states that he has never seen our cultivated bee work upon rhododendrons and azaleas, although he has frequently watched. Up till a few days ago I should have been prepared to confirm that gentleman's opinion, as during the past four years we have kept bees here, quite close to a very large bank of the plants in question; and it was not till the past fortnight that I saw our honey-bee working on them, which during the past fortnight they have been in great numbers; indeed, I cannot remember having seen a greater number of bees around any one plant than I saw around a plant of *Rhododendron nobleanum*. They have also visited the azaleas, but in less numbers. My opinion is that bees are driven to take or seek nectar on plants that at other times they would refuse if a supply of that which was better to their taste could be found. In this district I believe there was a dearth of honey between the pear and cherry, and before the apple, blossom came in; hence the bees seeking honey on plants that they would under other circumstances have passed by.—C. Warden, *Clarendon, Wilts.*

BOTTLE-FEEDERS FOR RAW SUGAR.

Many bee-keepers will object to the outlay for the new 'dry-sugar' feeders if already possessed of the old system of bottle-feeders. To such let me recommend a simple plan I have successfully used this and last seasons.

Cut a circle of excluder-zinc of the size of interior of bottle. Bend it so as to pass the neck, and when in, flatten out again. Now fill the bottle with raw sugar, hook up the zinc, and press it firmly on top of sugar; and invert over the feed-hole. The sugar will *not* fall through the large perforations of the zinc, and it will be in the best possible position for absorbing the steam of

the cluster. Practically the bees work up every granule until the bottle is empty.

An old pickle-jar will answer, and any zinc having holes large enough for the bees to pass through.—E. H. BELLAIRS.

POLLEN FROM BROOM AND FURZE.

No doubt many readers of the *British Bee Journal* have noticed a great number of their bees enter the hives dusted over with pollen, some have their upper surfaces completely covered, while another lot has the under part of their bodies thus affected. Of course it is known that the bees must necessarily get more or less coated with the fertilising grains of pollen, in their search for honey, but why should that section of bees that are told off as it were for honey-collecting get covered over with pollen? I confess it was for some time a puzzle to me how the little fellows contrived to dress themselves thus—like the daw in the fable—in borrowed plumage, but after some close observation I found that the flowers of the broom acted the part as milliner.

The contrivance set apart for this operation is very interesting, and those who have not witnessed it, and are interested in matters botanical, I should persuade to visit the nearest clump of broom, where it will be seen that the bees in quest of honey (I say those in quest of honey, for those in search of pollen are content to collect pollen alone), depress the left petal, or what is technically called wing, of a partially opened flower, which liberates the hitherto imprisoned pistil and stamens from the keel-shaped lower petals, with some considerable force. The stamens thus mechanically set free strike the bee exactly on the anterior upper part of the thorax accompanied at the same time by quite a little cloud of pollen, especially if the weather is dry and warm. This phenomenon is really interesting and requires to be seen to be appreciated.

An analogous movement of stamens may be observed in the flowers of the whin or furze, but owing to these being shorter than those of the broom, they can only strike the under surface of the bee's abdomen.

The pistil of the broom and furze flowers protrudes beyond the stamens, and on liberation strikes the already pollen covered surface of the bee, and in this manner the stigmatic surface of the pistil gets charged with the fertilising element from another flower (some species of course).

It will thus be seen that our bees are not coated with this golden dust in a hap-hazard way or through their own carelessness, but simply by a beautiful law of Nature's own, in order to accomplish her own natural means of of cross-fertilisation through the agency of these little industrious insects.—HY. DOBBIE, *Thickthorn, Norwich.*

AUBRIETIA PURPUREA.

I have much pleasure in forwarding you the enclosed cuttings of a flower I have never seen any reference made to by any of the bee-keepers or readers of your valuable paper. Its name is *Aubrietia purpurea*, a very hardy perennial, and blooms from March until very late in the season. I have growing in my garden arabis, borage, limnanthes, wallflowers, &c., and find the bees frequent this little plant more than any of the others, which is sufficient proof that it may claim a leading position amongst our bee flowers as a honey producer. It makes a beautiful border, and will grow in almost any place. Bee-keepers would do well to give *Aubrietia* a trial, and thus test its qualities as a bee plant. It strikes readily from cuttings if planted in damp weather. I can spare some cuttings. Price may be ascertained by application to—JOHN D. MCNALLY, 10 *Hillside Street, Springburn, Glasgow.*

[We do not remember that *Aubrietia purpurea* has been previously mentioned in the *Journal*, but *Aubrietia graeca* has been noticed and commented upon. The two are very much alike, and afford considerable pasturage in spring and early summer, and are best propagated by division of the plants and by seed.—ED.]

FEMALE EXPERTS AMONG COTTAGERS.

Some would have us believe that it was useless to endeavour to inform cottagers of modern principles in bee-keeping, on the grounds that the men are away from home all day, and could not give the bees the necessary attention. But surely this must be a poor excuse for not endeavouring to further the enlightened principles among the poorer classes, the very aim for which our parent and affiliated Associations exist. Mr. A. I. Root, in his excellent work, *A B C of Bee Culture*, gives us some conclusive proof of what a female can do among bees, in the person of Mrs. L. Harrison; but the other day I saw an instance still more striking, of a female turning up skeps of bees, taking note of their weight and the number of bees, and setting them back on the stool; and on showing several bystanders her method of feeding, 'the bees were allowed to pass out at the top of the hive,' when they soon dispersed the bystanders in all directions, but Mrs. Expert stood over the hives, without flinching or fear, and this without gloves, veil, or smoker. I was eye-witness to this, and I may say that I never saw a woman show such confidence among bees before, although many or nearly all the women in this district, when they or their husbands keep bees, can manage to hive a swarm and never apprehend any danger. Now what, may I ask, can be further required as an aid to the cottage bee-keeper? Mr. Cheshire, in his able remarks on foul brood, tells us that what man has done man can do, and why not what woman has done woman can do? It is not all of us who can even hope to attain the high position that last-named gentleman has won for himself, but if we never try, we most assuredly shall never succeed: and so with the cottage bee-keeper and his wife, they should try if they ever hope to keep up with the times in bee-keeping.—C. WARDEN, *Clarendon, Wilts.*

AN EXPERT'S TOUR.

Having just returned from a ten days' tour, during which I have been doing the *spring visit* as 'expert' in one of our largest counties, I have great pleasure in testifying to the great and increasing interest which is being taken in bee-keeping by all classes of society. I had during this period opportunities of conversing with noblemen, clergymen, officers in the army and navy, farmers and labourers; and all alike, either for pleasure or profit, were enthusiastically interested in the busy bees. But my principal reasons for writing is to say what numerous expressions of joy I heard on all sides at the formation and success of the 'British Honey Company' Limited. It is now felt that a *safe* and *certain* outlet will be provided for the honey which is harvested. Some of the people whom I visited were complaining that they had sold honey to certain dealers who advertise in the *Journal*, but were unable to obtain any settlement, although numerous applications had been made for the same; and it is now felt that if the price should not be so good, yet payment will be certain and speedy. It gave me pleasure to commend the objects and claims of the Company to all.

From all I have seen as to the number and condition of 'stocks' examined, I can testify to the ability and readiness of the bees for any amount of work which may await them in the coming season; and I feel certain that, providing we have suitable weather, the results of next honey harvest will be such as will astonish the most sanguine of prophets: hence the need and importance of a certain market.

The proposed weekly issue of the *Journal* is, I am sure, a step in the right direction and one which will be gladly welcomed by a very large majority of your readers, and by no one more than by yours.—First-class Certificate Expert.

DISPENSING WITH SMOKERS.

I think I am right in saying that experts in apiculture advocate the use of smokers, or rather smoke, to calm bees previous to manipulation. I have six stocks of bees in bar-frame hives, and for the last two years I have dispensed with smoke altogether, and have found that my bees have been quieter and easier to manipulate, besides saving me an endless amount of trouble in having to manage a smoker, which I am inclined to think is far more trouble than it is worth: and I have come to the conclusion that in manipulating smoke is unnecessary in very many cases, if not all, and can be replaced by firmness and care. In case you may think it would interest some of your readers to know how I manage to dispense with the use of smoke, I am pleased to state my method of procedure. I might premise that my bees have some Italian blood in their veins, and that when I first had them some six years ago, and was but a tyro in apiculture, I generally found them very savage.

When I wish to examine a hive (which I have done at all hours of the day) I first gently remove the quilt, and leave the bees for a few minutes, to get over the surprise at finding the roof of their house gone. I next remove the frames one by one (commencing with the one at the back of the hive) so as to leave a small space between the ends of each frame. I then take out each comb separately, and after examination return it to the hive and close up as at first. On removing the quilt the bees will fly about in great numbers, but by keeping a firm and steady hand they will quickly settle down without giving vent to their anger. Half the battle is to keep cool—persons who are very nervous in manipulating will perhaps do well to continue the use of smoke. When a bee settles on the hand or arm I would advise persons not to blow it off, but rather to remove it by a gentle touch of the finger, as I have found from experience that blowing greatly irritates bees.

In conclusion, I might mention that I always wear a veil when manipulating—not because I am afraid of being stung, but because a lawyer's clerk or a shopkeeper's assistant, or the like, with both eyes closed, and the cheeks the size of inflated bladders, from the effects of a sting, presents anything but a prepossessing appearance.—W. Beasley, *Aylestone, Leicester.*

Foreign.

FRANCE.

According to the *Apiculteur* of Paris, the first fortnight of last month has been anything but favourable for bee-keepers, the weather having been cold and dull in the extreme. The losses resulting from bees venturing out during the few short intervals of sunshine, must have been considerable. A decided change for the better, took place, however, on the 15th, when fruit-trees became one mass of blossoms almost simultaneously, thereby enabling the majority of stocks to make up for a good portion of their time lost. A few have thrown off what are known as Easter swarms, but were poor and unsatisfactory.

On Easter Monday, about thirty bee-keepers met by appointment at Auxerre to arrange for the re-establishment of a Bee Association which was started there a few years ago for the district of Yonne, and dissolved fifteen or eighteen months afterwards. A much larger number of friends was looked for, and would have attended, but for the stormy weather which was prevailing at the time. However, after a brief discussion, the Association was re-established, and opened to both French and foreign bee-keepers, to be known under the name of 'Société d'Apiculture de la Bourgogne.'

THE EASTERN RACES OF BEES.

(From Mr. F. Benton's 'Bees,' Nos. 4 and 5.)

Many into whose hands these lines may fall will doubtless know that I passed the years 1880–81–82 in the Orient, devoting my whole time to bee-culture, and that I have since then visited several different countries for the purpose of procuring the most valuable races of bees, as well as the choicest queens, to be had.

In 1880 'The Cyprus Apiary' consisted of over two hundred colonies of bees, collected in various parts of the island, and in 1881 the 'Mount Lebanon Apiary,' having eighty to a hundred colonies, was established by purchasing stock-hives from numerous apiaries located on the sides of Mount Lebanon. Many apiaries were visited also where no purchases were made, and I have conversed with a large number of the native bee-owners in many different parts of the East, but have never seen a trace of foul brood nor heard of its existence there. This is worthy of note, since the native bee-raisers in those lands are well acquainted with the birds, insects, &c., which are injurious to their bees. I believe myself fully warranted in the conclusion that the disease does not exist there.

After five years' experience I am of the opinion that the first rank should be given to Cyprian bees as the best bees, all things considered, yet cultivated. They were discovered and first imported from Cyprus by Mr. Edward Cori, Director of Chancellory in Bohemia, and are now raised largely in Austria, Germany, and America. The queens of this race live on the average longer, and show greater prolificness, than do those of the black or Italian races, but less inclination to rear large numbers of drones. They commence laying earlier than either Italians or blacks, and continue later in the season, moreover they do not stop brood-rearing at every check in the honey flow. It results from all this that Cyprian colonies are always very populous, hence are prepared for every harvest that comes along, and go into winter quarters in good condition: and since this race shows the greatest energy and diligence in honey-gathering, remarkable yields of honey can be obtained with it if rightly managed. A striking example of this is this is the yield of 1000 lbs. of honey, obtained by a well-known bee-keeper, Mr. B. F. Carroll, of Dresden, Texas, in a single season and from one hive of bees. Cyprians winter excellently, even in very severe climates. They show the greatest courage and perseverance in defending their hives against robbers, moths, &c.,—in fact, they are robber-proof and moth-proof. When high winds prevail they are extremely prudent about venturing out, although their flight is strong and swift. They frequently construct eighty to a hundred queen-cells at a time, and the young queens upon emerging are remarkably vigorous and active. When the combs are removed from hives of pure Cyprians, the bees do not run to the lower parts of the frames and drop off in clumps as do black bees, but remain, like Italians, spread evenly over the combs. They can, however, be shaken from the combs as easily as black bees. Cyprians are the yellowest, most beautiful bees yet discovered, and the race is such a well-established one that in all crosses obtained with it the Cyprian blood has the greatest influence and is even easily discernible through many generations. This potency in transmitting its markings and qualities is positive proof that the Cyprian is a vigorous, well-established race, developed by many centuries, perhaps even thousands, of years of natural selection.

The claim that Cyprian bees are possessed of such great stinging propensities as to make them nearly unmanageable I have not found well based: indeed, in com-

mon with many others who have carefully tested them, I prefer to manipulate Cyprians rather than Italians, and find that, while getting no more stings from them, I can get on much faster with the work.

Syrian bees are found on that portion of the mainland of Asia lying opposite to Cyprus, but only northward from Mount Carmel. Their qualities are quite similar to those of Cyprians, hence what I have said in reference to Cyprians applies also in a great measure to Syrians, and of all races yet cultivated they certainly are second to none unless it be to the Cyprians. The Syrian type is not however as well established as the Cyprian, and they vary slightly more in their markings and temperament. The workers and drones show less yellow, are greyer over their whole bodies, and their individual activity is not quite equal to that of Cyprians, although exceeding that of blacks or Italians. The queens are, on the average, rather larger-bodied than Cyprian queens, but less nimble, so that the amount of work performed by the two remains about the same. I do not find Syrians preferable in disposition to Cyprians. The two races are very similar in this respect, and with gentle treatment at the proper time, either can be easily manipulated with little or no smoke. I rarely have to resort to smoke unless manipulating Italian or Palestine bees.

Syrian bees are never to be confounded with Palestine bees, a very different race, found southward from Mount Carmel, in the Holy Land proper. Palestines are smaller-bodied than Syrians, often less distinctly banded with yellow, and are greyer in colour. They are more given to robbing, more likely to have fertile workers, and not to winter as well as either Cyprians or Syrians, not even as well as Italians. They are infinitely more difficult to handle than the races just mentioned, both because of their stinging propensities, and because they run on the combs like blacks and drop off in clumps, and are also disposed to run from the combs over the hands of the manipulator, biting at the same time far more than do other bees. In truth, I know of no bees, unless possibly it be the Egyptians (which the Palestines resemble), that are as difficult to manage as the race coming from Palestine. They are, however, energetic defenders of their hives, fair honey-gatherers, and prolific breeders, as well as interesting, and, when distinctly banded, very beautiful bees.—Frank Benton, *Munich, Germany.*

BEE-KEEPING IN QUEENSLAND.

Thinking a short statement of the yield of honey from a small Queensland apiary might be of interest to some of your readers, we forward the same for insertion in the *Journal* should you deem it of sufficient interest. Of course it can be condensed if you think desirable. The time at our disposal is very limited, otherwise we believe the return would have been considerably *larger* in proportion. To the same cause is attributable the apparent neglect, at a critical time, of hives 5 and 8.

Our first stock (English bees) we obtained in August, 1882, from the nearest port, distant about 100 miles, and from thence we had to convey it over unusually rough and *rocky* bush-'roads,' across bridgeless creeks and gullies, involving terrible and unavoidable joltings, and more than one *submersion* in the creeks. Fortunately the box, 'a bar-frame' hive, was of an unique construction, the frame being of a substantiality that would astonish your English makers, and very small in size. Thanks also to the occupants, the combs were built without regard to the frames, thus further tending to security in transit. There was a slight collapse of comb, and about 1000 bees were drowned or suffocated, but with these exceptions the hive reached its destiuation safely. Taking into account the cost of the special trip which it involved, this stock stood us in some 10*l.*

YIELD OF HONEY

From September, 1884, to March 19, 1885, both inclusive.

Bees, Italian.

No.	Sizes of Hives (O.S. measurement).	Description of Stock.	—— Notes. ——	Extracted Super Ho.
				lbs.
1	20 × 12 × 12	1st swarm of Sept. 25, '84	Swarmed Dec. 13, '84	140
2	Ditto	2nd swarm of Jan. 1, '84	... ...	320
3	Ditto	Establ'd stock	Swarmed Nov. 26, '84	260
4	Ditto	1st swarm, Nov. 26, '84	Removed queen Jan. 23, '85, so had to raise artificial one	140
5	Ditto	Establ'd stock	In Nov. '84, queen died: queenless for one month	200
6	20 × 12 × 12	Ditto	... ...	260
7	Ditto	Ditto	... ...	260
8	Ditto	Ditto	Swarmed Sept. 25, Oct. 3, & Dec. 27, '84: queenless from latter stock 1 mo.	90
9	Ditto	Ditto	Swarmed Sep. 21, '84	290
10	23 × 12 × 12	Ditto	Swarmed Sep. 25, '84	208
11	25 × 12 × 12	Ditto	... ...	290
12	24 × 12 × 11	2nd swarm, Oct. 3, '84 [united	Plain box, no frames. Comb had to be made.	85
13	40 × 12 × 12	*Two* 1st swarms	... ...	520
14	20 × 17 × 10	1st swarm, Dec. 13, '84	Plain box, no frames. Bees had to make their own comb.	80
				3143*

Average per box, 224½ lbs.

There being no bees within a radius of 100 miles, this was a favourable opportunity for Italianising; we, therefore, in January, 1883, obtained from Brisbane an Italian queen, and some workers, at a first cost of 3*l.* These had to be shipped to our nearest port, and obtained from thence as before, and under circumstances even more trying, since it was during our 'rainy season;' so that the total cost to us was even more than on the first occasion. These facts are merely mentioned in order to show some of the difficulties that have to be encountered in starting an apiary in an out-of-the-way district such as is ours.

We omitted to say that the Italianising above referred to was successfully performed *à la* 'Simmins' method.' Rather a risky undertaking, *some* of your correspondents may think, seeing that a failure would have involved a considerable outlay of time and money.—Reckitt and Mills, *Mount Britten, Queensland, 19th March*, 1885.

A Lecture on Bees and Bee-keeping.—At the usual meeting of the Tooting Mutual Improvement Society, on Thursday, March 26, the Rev. W. Anderson, D.D., the President, in the chair, Mr. James Pirie, M.A., one of the Masters in the City of London School, delivered a lecture on the above subject to an unusually large audience in the Lecture Room of Defoe Presbyterian Church.

The lecturer said the wonders of the hive have ever formed a theme of interest, but the study within the last quarter of a century has acquired quite a unique and far-reaching interest from the close relationship existing between insects and flowers. This aspect of the question, the lecturer thought, far outweighed all immediate considerations of commercial harvesting of wax and honey. Our illustrious countryman, Charles Darwin, was the first clearly to point out the essential service which insects perform to flowers. This relation is one of mutual advantage, the insects obtaining supplies of honey and pollen, and in one case transferring

* From *supers only*; body-boxes untouched.

the pollen from the stamens to the pistil of the same flower (self-fertilisation), but in the majority of cases transferring the pollen from the stamens of one flower to the pistil of another flower (cross-fertilisation). This cross-fertilisation was, however, sometimes effected by the uncertain agency of the wind. Plants which were cross-fertilised, besides producing a larger number of seeds, produced a better quality of seed than plants which were self-fertilised. In some flowers the relative positions of stamen and pistil rendered self-fertilisation impossible, and in such cases, were it not for cross-fertilisation, the species of plant would die out. Wind-fertilised flowers, as a rule, have no colour, emit no scent, produce no honey, and are regular in form; whereas colour, scent, and honey are the three characteristics by which insects are attracted to flowers. Darwin, speaking of clover and heartsease, remarks, 'No bees, no seed; no seed, no increase of the flower. The more visits from the bees, the more seeds from the flower; the more seeds from the flower, the more flowers from the seeds.' And he mentions the following experiment:—'Twenty heads of white clover, visited by bees, produced 2990 seeds; while twenty heads, so protected that bees could not visit them, produced not one seed.' The lecturer here read a curious advertisement, which appeared in the *Bee Journal* last year, offering 1*s.* for each humble-bee delivered alive to an address in Kent. These humble-bees were wanted for New Zealand, in which colony the common red clover sets no seeds, inasmuch as the proboscis of the ordinary hive-bee is not long enough to effect the object. Accordingly, while these colonists can grow clover for fodder, they have none suitable for seed purposes in the following spring, and thus entail great expense by importing their seed from this country and elsewhere. If they succeed in cultivating the humble-bees this difficulty will be obviated. The marvellous arrangement in Nature whereby cross-fertilisation is secured in the case of garden sage (*Salvia officinalis*) was then minutely explained, reference being made to enlarged diagrams showing the organs of the flower protected by a hood, and a bee standing on a platform petal whilst probing for the nectar secreted at the base of the corolla-tube. The bee is represented visiting first a young flower, without coming in contact with the immature stigma; but the bee's head strikes the lower anther of the stamen, which causes the stamen to swing round on its connective, and thus to bring down the large upper anthers bearing pollen-dust, with a considerable thump upon the back of the bee, and so dusting her with pollen that when she next visits another flower having a ripe stigma obstructing the entrance, her dusty back rubs against the sticky surface of the stigma, and fertilisation is thus provided for (Lubbock). Peas and beans, cucumbers, vegetable marrows, campion, borage, oak, hazel, and hosts of other plants and fruit-trees are in large measure indebted to bees for the fertilisation of their seed. The discussion of this branch of the subject prevented complete details being given regarding the practical management of hives. Still an outline was supplied, displaying the immense advantage, in numerous ways, of wooden bar-frame hives over the old-fashioned straw or 'bramble' hive. Mr. Pirie here, with the aid of one of his own Blake hives, demonstrated the usefulness of moveable frames to which sheets of artificial wax-foundation combs could be fastened thus saving honey and labour to the bees, for about 2 lbs. weight of comb is required in a full hive, and if the bees were left to themselves the honey they would have to collect to make this wax-comb would weigh 40 lbs.; and it would surely be better to have the 40 lbs. weight of honey stored for our own purposes, and let the creatures have the wax required, costing less than one-tenth of the value of the honey. By this system also swarming could be effected with the most perfect ease and certainty, and by judicious manipulation, and introducing of queens to stocks from which artificial swarms had been taken, four colonies can, in a single summer, be made out of two colonies, besides yielding a good harvest of virgin honey in section-boxes, and of run-honey by use of the extractor. The newest wrinkle in bee-keeping was also explained. In an ordinary frame the queen deposits her eggs in the centre, and works downwards in depositing brood, whilst the workers store their honey in the cells above the brood-cells. But if such a frame is reversed, the honey-cells will be at the bottom, and the brood is now uppermost. The bees will not suffer their stores to be placed in such an unsafe position, and so they will now commence to empty the honey-cells, and will carry it aloft to the section-boxes, which it is the pride of the bee-keeper to have filled. The honey-cells at bottom of frame being now vacant, the queen is ready to utilise them for her eggs. Thus the whole space within the frame becomes devoted to brood, and the hive being strong in numbers is ready to take advantage of a favourable opportunity for honey gathering, the produce of which will be deposited in the supers or section-boxes. Another advantage is that the reversed combs are likely to be built up close to the bar, and thus a firm slab of comb will be formed. The labours and writings of Huber, Dzierzon, Langstroth, Woodbury, Abbott, Cowan, Benton, and Cheshire, were touched upon. The diagrams used (illustrating flowers, bees, extractors, the process of driving straw skeps, the sting of a bee, &c.) were drawn by boy friends of the lecturer, and, although homely, answered the purpose.

A cordial vote of thanks was given to the lecturer, on the proposition of Mr. Sandison, seconded by Mr. Denchar.

Bees and Bee-Keeping.—A most interesting lecture on this subject was delivered on Thursday at the Town Hall, Colchester, to the Students' Association, by Mr. Edmund Durrant, of Chelmsford. The Rev. W. H. Wardell occupied the chair, and there was a good audience. The lecture, which was listened to with much interest, was illustrated with some capital magic-lantern slides. The lantern was kindly lent by Mr. W. H. Stedman. Mr. J. S. Boreham, of High Street, Colchester, also lent a large amount of bee 'furniture,' specimens of modern hives, &c. Mr. Durrant described the various kinds of bees, photographs of each of which were thrown upon the screen, including the English worker bee, or black bee, the Ligurian and Cyprian bee, the queen-bee and the drone. He also alluded briefly to their structure and habits of life, the marvellous reverence which the workers show for their 'queen,' and the ignominious fate of the useless drones whose wings are bitten off and the poor creatures cast out of the hive; and then mentioned some of the many superstitions regarding bees, such as the supposed necessity for telling them if a death occurs in the family, and for paying for a swarm always in gold, &c. The old-fashioned methods of bee-keeping and 'burning' he strongly condemned as wasteful and inhuman, and traced out the origin of the custom of beating on a saucepan when a swarm is taken. The effect on the bees of the noise at the time of swarming was absolutely *nil*, because they are known to be deaf. Mr. Durrant explained the modern improved hives, and showed their great superiority. He mentioned an instance of a man who persuaded his friend to give him a hive, which he was about to 'burn,' the consequence being that the same swarm produced next autumn honey to the value of 6*l*. It was quite possible for a cottager to pay his rent out of the produce of his hives, and it had been said that fifty hives would bring a man in 100*l*. a-year. The lecturer concluded by giving a short history of the Essex Bee-keepers' Association started in 1880. To the farmer bee-keeping was especially important, because Darwin

had proved experimentally that beans produced four times as good a crop if fertilised by the good offices of bees, and clover was improved ten-fold by them. Some people thought there might be fear of the country being over-stocked with bees, and the market for honey over-crowded; but, considering that in some parts of Germany and Switzerland there were in a single district as many as 2000 hives, and yet such districts were not over-crowded, there was not much likelihood of over-stocking England with honey by encouraging apiculture. In conclusion, as a further instance of the practical use of honey, the lecturer opened a tin of Honey Biscuits, which he had received that day from Messrs. Huntley and Palmer, who only buy their enormous stock of honey from bee-keepers of the modern school. The biscuits were distributed in the room. So healthful is honey supposed to be, that the lecturer mentioned that it had been said if we could only eat enough of it we should be able to work day and night. A very hearty vote of thanks was accorded to Mr. Durrant and those who were kind enough to assist in promoting the lecture, and a similar compliment having been paid to the Chairman, the meeting separated.—*Essex Standard.*

Attacked by Bees.—The Rev. J. P. Ellwood, Missionary at Jabalpur, North India, relates an adventure he and his party had with bees while on an itinerating journey last year:—'It is said that people live and learn even in the common things of every-day life, and surely this was verified during our journey to Bandakpur. We had a new experience of camping life, which might have proved very serious, but as it happened all of us escaped comparatively unhurt. It so happened that in one camping-ground there were three nests of bees on the trees. As soon as the servants and cartmen began to cook their food, the bees evidently resented the intrusion, and thereupon one nest descended in great anger and attacked Mrs. Ellwood, who was quietly walking round with our little girl. She gave the alarm, and immediately Jane, the Frances Ridley Havergal Fund, Bible-woman, came to the rescue, but poor unfortunate Jane now came in for the brunt of their anger. Mrs. Ellwood, being badly stung, rushed into the tent, but poor Jane could not rid herself of the bees. The catechists and servants came to her assistance, and they also had to share the conflict, for by this time the bees of the other nests, hearing the conflict below, rushed down upon us. The word was given to all, "Rush from the camp and save yourselves," and in a few minutes our camp was one of wild confusion, never to be forgotten. Catechists, Bible-women, and servants, with their half-cooked food, bullocks, and other animals, ran helter-skelter for dear life over ploughed fields, and the bees after them. The scene was most ludicrous and yet terrible, and the bees made their presence felt in a very painful way. After making good our escape we all sat by the roadside, fearing to return to our tents, for return might have proved fatal to some of us. Fortunately there was a road bungalow two miles off, and there we found an asylum for the night. We did not forget to thank our heavenly Father for sparing our lives. Only a short time ago, a European doctor in a similar position was stung to death by a swarm of bees. We were forcibly reminded of the Psalmist's words, "They compassed me about like bees," and we thanked God and took courage.'—*The Church Missionary Gleaner.*

Degree of Heat desirable in a Hive for Comb-building and Brood-rearing.—This should be about 95° Fahr. The degree of heat in a hive, even in winter, is much more than it is generally thought to be. In January a thermometer standing near an apiary indicated 7° below the freezing point, but when the bulb was inserted a little way into the entrance of a hive, it rose 23° above that point. Had it been inserted into the cluster, it would have indicated a much higher figure.—*American Bee Journal.*

A Profitable Apiary.—Several Swiss newspapers have contained the following statement:—'Pastor Jeker of Subingen (Soleure), owner of sixty stocks of bees gathered during last year (1884) twenty-nine hundred-weights of honey, leaving twenty-five pounds in each hive for their winter provision. These 2900 lbs. represent a value of 2900 francs. This is a gain honourably earned.' A correspondent having some doubts of the correctness of the above figures, applied to Pastor Jeker, who in his reply says: 'The figures given are exact and truthful. My sixty hives (fifty-nine in wooden hives and one in straw) have furnished me twenty-nine hundred-weights of honey. There are other bee-keepers who have reaped as much honey; for example, M. Bertrand at Chalet, near Nyon. Bee-keeping is a nice little source of income for the people of the country.'

What next?—An American of the name of Tompkins has, it seems, solved the problem how to render bees, wasps, and hornets harmless, by depriving them of the ability to sting. He has brought to public notice an ingenious invention of his own called the bee-muzzle. It consists, we read, of a minute particle of cork, which is placed in contact with the extremity of the insect, and into which the bee is induced to thrust its sting. A drop of cement is then placed on the cork, the result being that cork and sting are firmly attached together. The operation is described by the inventor of this novel kind of muzzle to be quite painless to the bee, although, of course, the insect is a trifle annoyed at first when it discovers the sting cannot be withdrawn. But, one is assured, it quickly grows used to the slight inconvenience, and, provided the muzzle be adjusted with care, it in no way interferes with the flight of the bee, its advantage being that the bees are a safe playmate for children and as harmless as flies or butterflies. The inventor of the muzzle, who resides in New York, has in his garden seven hives, containing a matter of fifteen hundred bees, exclusive of the queen (!) Formerly the neighbours were exposed to the danger of being stung, and complaints were continually lodged against Mr. Tompkins. Since he has applied his invention to all his insects, excepting of course the drones, the danger has disappeared, and the hives are no longer a nuisance to neighbours.—*Evening Standard, May 22.*

A Bee-keeper's wife is very interested in any recipes for various ways in which honey can be used, and much obliged to the kind friends who supply them now and again to the *Bee Journal*, and would be glad if any one would give directions for making honey drops or such-like sweets, &c., and honey beverages.

A GLANCE AT OUR WORK, AND OUR NECESSITIES.

A Paper read before the Devon and Exeter Bee-keepers' Association.

By Captain Heysham, R.N.

(*Continued from p.* 104.)

There is another most important class whose aid is sadly wanted, and whose countenance and assistance would do far more for us than the mere money value of their subscriptions. I refer to the landed proprietors and country gentlemen. Their position naturally gives them great influence on those around them, and any interest shown by them would go far towards encouraging bee-keeping as a national industry. The question is, the best way of gaining their help? If not already definitely settled, I trust it will soon be decided to send a circular to them, showing the good work done, and being done, by the County Association, and begging for their co-operation.

Before leaving this part of my subject, there is, I think, one other point that is worth mentioning; it is this, that when endeavouring to convince cottagers of the superiority

of the modern system, and giving them practical illustrations of the method of management, it is most desirable to show them good, plain, inexpensive, but serviceable hives,—hives that they can see for themselves can be made at a small outlay, and not to overwhelm them by showing a number of bulky and expensive articles, which, however convenient, or even necessary to those who keep bees for pleasure, or have a large number of hives, are not absolutely required by those who are taking up bee-keeping on a small scale, and with the object of adding to their slender incomes. Success will make their onward path easy, and necessary appliances will soon prove themselves to be a good investment. This is abundantly proved, by the numerous working men who have taken up bee-keeping for profit, and succeeded beyond their expectations. One giant obstacle seems to be the 'Extractor;' it is true that an extractor on the principle of Abbott's 'Little Wonder' can be made very cheaply, and takes up but little room, and one would suffice with management for many small bee-keepers in a village, but this co-operation is difficult to arrive at. Could not the Association, by entering into a special agreement, supply one when asked for by cottagers at the lowest possible remunerative prices? This would add more to the many advantages already offered by the Association, and which are at present too little known and appreciated.

It will be said that to increase our list of Members, and through them to extend the sphere of usefulness of the Association, has been our object for years, but I would point out, that to do this, and to succeed with those whom we more particularly wish to benefit, we must all work in accord, and not in a fitful or disjointed way. We have strong prejudices and the clinging to old customs to combat; and it is only the thorough conviction of the immense superiority of the new system over the old, coupled with the fact, that honey taken in the old fashion, by sulphuring the bees and smashing up the combs, is fast becoming unsaleable, that will, in the majority of cases, effect the revolution in bee-keeping that we are here to-day to promote.

I have already alluded to the sweeping condemnation so often pronounced on the bar-frame hive by people innocent of any knowledge, either of its advantages or the way to use it; and I have instanced one case out of many where it has been so condemned and discarded. The harm done does not stop there, but is repeated from one to another, equally ignorant and only too glad to find themselves able to quote what they consider so well proved a case, vouched for by one who has tried, and condemned the 'new-fangled hive,' which they have looked at from afar, but never had the courage, or energy, to try for themselves. I think that, as a general rule, it may be said, that the owner of a few neglected-looking skeps, who has failed to derive any benefit from the teaching so lavishly bestowed, and brought in most cases to his very door, in fact, one whose intelligent interest has never been aroused, is not ripe for the bar-frame hive, his time has not yet come, he must be brought in by the force of example, the success of his more intelligent neighbours, or the more powerful lever of self-interest, when he finds there is no market for such inferior stuff as he produces. It might be a great aid in this direction, if we could furnish our 'Local Representatives' with a list of cottagers who have been successful, showing their place of abode, occupation, amount of honey taken, price obtained, and prizes gained; and this might be still more useful if supplemented by a short statement of the many advantages offered to members of the Association for the very small annual subscription asked for, and it would effectually answer the ever-repeated question, 'What shall I gain by becoming a member?' and would at the same time be cheaper than distributing 'Annual Report' books with the same object.

I remember hearing a story of a captain of a ship, who was accused of firing into a foreign vessel, in his denial of the charge, he produced argument after argument to prove that he had not done so, and, finally, wound up with the unanswerable one, that he had no guns. In a like manner, I come, in conclusion, to the most important question of the day, one on which I think, that not only the spread of bee-culture depends, but its very existence up to its present dimensions, viz., the sale of British honey.

People will not produce, at some cost and labour, that for which there is no ready sale or convenient market. We all know what a wonderful harvest has been gathered in the past season; and if you are led to expatiate on the marvellous quantity of honey taken, as a proof of what can be done with the bar-frame hive, with proper management, and as an incitement to your audience to take up bee-keeping, you are met on all sides by the question, 'How can we dispose of our honey?' followed by the searching inquiry, 'What have you done with yours?' There are many present who know that this is not always very easy to answer satisfactorily, and the question cannot be shirked, it must be taken up, and answered, if we are to advance. The formation of a Company is a commercial question and has no place in a paper like this. A Central Company, such as the one formed in London, will do but little for outlying districts, unless depôts are established at convenient centres or agents appointed; and this means an enormous increase of working expenses. For the average Devonshire cottager, the depôt might as well be in South Africa as in London. We are indebted to some public-spirited and energetic men for bringing to light purposes for which honey may be used, and this is all in the right direction. One thing is certain, we cannot stand still, and it seems to me that we have come to a point where more road-making is required before we can advance.

In some places the Honey Fair has succeeded well, and that, at least for the present, and pending future discussion, seems to me to be the best and only means we have within reach to meet the undoubted want. This would, to some extent, test the supply and thereby pave the way for further organization if found to be requisite, and would at the same time give us the advantage of having the prices determined in open market. Producers who are not business men may, in some cases, look for too high a price for honey, but, on the other hand, it is unduly depreciated by others interested in its sale, and the open market would regulate this beyond all dispute. The prices obtained at 'Grantham' Honey Fair, on October 18th, averaged 9*d.* per lb. for extracted, and 1*s.* per lb. for comb honey, and as something like 4000 lbs. were disposed of, much of it must have been bought to sell again; therefore, when prices are run down considerably below the ruling of the market, producers naturally compare the depreciated prices with the retail prices, and the pertinent question as to what becomes of the difference forces itself upon them.

It has been computed that we have, during the last year, produced in the United Kingdom 6,768,750 lbs. of honey, or over 3000 tons; and from returns lately obtained, we have been able to compute, that our county of Devon has produced 50,339 lbs. or nearly 22½ tons, which latter quantity, at an average price of 10*d.* per lb. for comb and run honey, is worth 209*l.* 9*s.* 2*d.*

That our pure British honey ought to be eagerly sought after, if only we could succeed in diverting the demand into the proper channel, is, I think, proved by the fact, that in the twelve months from January to December of last year, no less a sum than 62,357*l.* was paid for foreign honey, of the quality of the greater part of which the public can scarcely now plead ignorance.

But the quantity gathered in the county represents but a very small fraction of what might be gathered; perhaps this will be more forcibly brought out if I mention here that the returns of only ten advanced bee-keepers,

the greater part of whom owned less than ten stocks of bees, show in the aggregate 5221 lbs. of honey, while four show averages of 133, 97, 74, and 74 lbs. respectively per hive.

Having said so much I feel bound to add that the late returns seem to show that the value and importance of wax is not sufficiently recognised and appreciated. The value of wax imported into the United Kingdom in 1882 amounted to 126,926*l.*, and in 1883 to 97,142*l.* There can be little doubt as to our capability of producing honey in sufficient quantities to meet the demand, and I am sure we can also do a great deal more in the production of wax; from my own observation, much is wasted, and old combs are even left about, doing positive harm.

These statistical facts should be taken to heart and made known far and wide, as many are sceptical as to our capability of meeting the demand.

When about 30 lbs. of honey represented a very good harvest for the average bee-keeper, it was all easily disposed of, however small the place, but quantities such as now produced, and which will still go on increasing with the spread of bee-culture, are not to be disposed of by selling a few pounds here and there, we require a well-considered and well-organized system; and as I know that this subject has had the anxious consideration of our able President, Honorary Secretaries, and other members of the Council, I trust we shall in the discussion which will probably follow have the advantage of hearing their valuable opinions thereon, and that we shall not cease to give it our earnest consideration till we have arrived at a satisfactory solution of what I must consider the burning question of the day in the interests of bee-culture.

Echoes from the Hives.

Rottingdean, May 21st.—No honey weather so far, but doubtless all will be the better for it presently, as so many things have been delayed to a more seasonable time, with every promise of a really fruitful year.—Samuel Simmons.

Brentwood, Essex, May 21.—The 'Echoes' in the 15th May number of the *Journal* contains nothing but complaints about the lateness of the season, and the unfavourable weather. With us the weather has certainly been very cold, but my bees seem to have got hardened to it, for on the 12th May, I had a very strong swarm from a frame-hive, and have three stocks now working in the supers, some of which are nearly ready for sealing over. By the appearance of two of my hives this morning, I should not be surprised to see swarms from them both, if the sun keeps out till the afternoon.—L. B.

Grantham, May 23.—The condition of stocks generally may be said to be very good, and but for the chilly days during the last fortnight swarms would have been in plenty. The fruit blossom, which is now on the wane, has been all that could be desired, both for the fruit-growers and bee-keepers. Should we be favoured even now with 'May weather' of the *olden times*, full average-weight swarms would be the order. In my travels last week, and whilst waiting at a village station, my ears were tickled by the ever-delightful buzz, and on looking round I found a swarm-box with its occupants destined for the far North. I could but feel sorry that they were not better provided for their long journey. They would have no chance (if I may judge by the twinkle of Mr. Guard's eye as he remarked, 'I'll put um in a safe corner') of a 'liquor up' on the road. The winter beans are on the eve of bloom, and it would be wise for those bee-keepers who are dependent on crops tother side of the hedge to secure a stand in the middle of the field, be it a bean or clover one. I hear of very many queenless stocks this year. I shall be out of my reckoning if the coming season is not marked as the best for many years past, and with honey at 1*s.* and 1*s.* 6*d.* per pound will rejoice the hearts of us all.—R. R. Godfrey.

Clapham Cottage, Penmaenmawr, May 23.—Having now five strong stocks, &c., I am especially pleased with any hints on bee management, as I am quite an amateur at the hive. And though I am particularly fond of apiculture so far, I hope to become more and more efficient. I take it up to make it profitable. The weather here has been most unfavourable for bees—wet and cold, snow, hail, &c., and high winds prevailing almost daily, so that I have had to feed almost constantly.—E. Owen.

Honey Cottage, Weston, Leamington, May 25th.—Another wet day—a repetition of what we have had for many days during the past month, varied occasionally with sharp frosts at night, and hail and snowstorms by day. Vegetation is very backward, and bees have required to be fed continuously to keep them in good heart. They scarcely get a chance to work on the pear and apple-trees, which have blossomed very profusely. I have not heard of any swarms round about, but hope the weather will change for the better before long, as it is a long lane that has no turning.—John Walton.

Somersham, May 25.—I send no 'Echo,' as I can say nothing but 'What horrid weather!'—C. N. White.

North Leicestershire, May 25th.—Bad weather continues so that the bees cannot reap the harvest ready at hand in the wonderful masses of bloom surrounding them on all sides. On four days only, during the last fortnight have they been able to do a good day's work; on several days they have been entirely confined by cold winds and wet. There is little or no cry for increase of room yet, and matters are generally backward. Swarming is altogether in abeyance. There has been an unusually large number of instances of carrying out of grubs in spite of precautionary feeding. To-day is nineteenth wet day up to date on this month.—E. B.

NOTICES TO CORRESPONDENTS & INQUIRERS.

W. B. Hunt.—*The Queen and her Eggs.*—The queen-bee can never be said to be 'on the point of laying drone eggs.' When the population of the hive increases at spring, and swarming is intended, the queen deposits drone eggs in any drone cell which the hive may possess. The bees of a *swarm*, when headed by a fertilised queen, always begin by building worker-cells in which the queen deposits worker eggs, even on the first day. In making an artificial swarm, and placing it upon worker foundation there is no fear of the queen laying drone eggs. Neither would there be if no foundation were given. The queen, except in the case of a drone-breeder or unfertilised queen, has the power of laying drone or worker eggs, at pleasure. In the case of *after* swarms with unfecundated queens at their head, drone-comb is always built until foundation takes place.

St. Helena.—1. *Fighting.*—The cause of fighting was an attack by robbers, caused by the scent of the syrup. 2. *Destruction of Larvæ.*—The cold weather caused the destruction of larvæ—probably drone larvæ—and, maybe, scarcity of food was another cause. A strong colony at this time of the year will take down a quart of syrup per day. Are you sure that your feeder acts properly, and that the bees get the syrup? 3. *Robbing.*—The bees returning laden with pollen in the early morning were, undoubtedly, bees of the hive, which had escaped through some crevice unobserved by you. Amongst them there might have been robbers also. On the arrival of fine weather robbing will cease and the colony will right itself. Continue

to feed during cold weather, and contract the entrance. 4. *Moving Hives.*—No, you must not move the hive, or at this time of year you will lose half the bees, or more. The only plan would be to send it away—a distance of two or three miles—for a fortnight. After that it might be brought home and placed in its new position. The colony is probably weak and requires feeding. 5. *Uniting.*—No, it is not too late. By all means unite the weak colony—queen or no queen—to a stronger one. The bees will settle the matter of queens for themselves by destroying the most worthless.

An Inquirer.—The sections, Mr. Simmins' pattern, 4½ by 4½ by 1¾, may be procured from J. Howard, Holme, Peterborough. We know of no maker of 4½ by 4¼ that width.

E. B. L.—*Bees Dying.*—Judging from your description of the bees dying, we imagine they were poisoned, but do not suppose the age of the salicylic acid solution could be the cause. We are now using some made three years ago with good effect. Was the syrup *burned?* 'Caramel,' arising from burnt sugar, will destroy bees. Or was the sugar used adulterated? Duncan's Pearl Sugar makes the best syrup we have ever used.

Finchley.—1. *Enamel Cloth.*—We have never used the ordinary glazed table-cloth as a covering for hives. Judging from its strong scent we should think it very likely to injure or disgust the bees. Besides, it is too heavy and thick to lie closely to the frames, and to be easy of manipulation. We have no evidence of its being injurious. 2. *Transposing weak Stocks.*—This plan is often pursued, but we doubt its advantage, except under particular conditions. A weak colony, at this season possesses very little brood, and if the queen be young and prolific, from four to six weeks must elapse after transposition before young bees come forth in any numbers, which will be too late for the bulk of the honey harvest except in heather districts. Our plan is before transposing to transfer a frame or two of brood with adhering bees, from the strong to the weak colony, carefully caging the queen of the latter and closing up the frames of the former with division boards after giving an extra sheet of foundation. The two colonies then take each other's stands, about noon, when the bees are working. The queen is released the next morning. We have found this plan to answer well.

Barnaby Rudge.—1. *Sugar.*—The sample of sugar will answer the purpose of dry-sugar feeding. 2. *Enamel-cloth.*—The pattern enclosed is not suitable. There is too much substance to allow of its fitting closely to the frames. The article we recommend, and ourselves use, is imported. It is sold in squares to fit the hive, with rims of zinc or tin to make it lie flat. Your pattern has a very objectionable scent, which might injure the bees. Mr. Neighbour, and other hive-dealers, we believe, import it at 1*s.* per square. We advise you not to use that of which you enclose pattern. 3. *Doubtful Combs.*—Yes; you may safely use the combs after thoroughly spraying with strong Phenol solution.—4. *Rearing Queens.*—We do not think it would pay to rear queens for sale at 2*s.* 6*d.* each. The Americans say that it does not pay to rear them at one dollar (4*s.* 2*d.*) each.

Miss Buchanan.—1. *Uniting.*—The presence of brood proves conclusively that of the queen. It frequently happens that, in spite of a careful watch, she runs into the hive, hidden among her subjects. The brood which was found in the vacated hive should have been preserved. If put over the feed-hole of the united stock, and kept warm, the bees would have hatched it out and so increased their strength. 2. *Combs joined together in Bar-frame Hive.*—If this is caused by mismanagement when hiving, so that some of the combs are built across, the whole of the frames must be lifted out bodily by passing two pieces of wood under the ends, and the combs cut out, straightened, and tied in again. 3. *Side Comb not built out.*—This shows that you gave the bees more frames than they could cover. Put it in the middle and it will soon be built out.

R. P.—*Musselburgh.*—Unless any examination for micro-organisms, such as bacilli, can be made immediately after death, a certain amount of doubt exists, as what are termed septic or merely putrefactive organisms soon multiply with the commencement of decay of which they are the actual cause. In this case the queen was already dead before you sent her on to me, but these are the indications:—Ovaries extremely shrunken, and abounding in bacilli, presumably *Bacillus alvei* (a cultivation shall be made to determine this, and of which I will report). The viscera curiously small, air-sacs immense. Colour of ovaries such as that noticed in queens suffering from the Alvei. All point most distinctly to this queen having taken the disease of the bees, and for a very curious reason, which I intend presently to make public, she would be especially liable so to take it in very early spring, and but little liable later in the year. If the cultivation corroborates my diagnosis, and I have much confidence that it will, we shall have another link in a curious chain of evidence which must in itself do much to enlighten us where we sorely needed enlightening, and so do something towards preventing the wholesale spread of the disease in question.—F. C.

E. Sulgrave, *Sutton Parva.*—Post-card sent to you, but returned as the address was insufficient. Starvation causes the turning out of the larvæ and pupæ, whose juices are first sucked by the famished nurses. Feed at once to prevent destruction, but great mischief has of course been done which is now beyond repair. —F. C.

H. Fewtrell, *Reading.*—The queen if not needed, with some of the comb, would no doubt be interesting, and I should be obliged by receiving either or both, as the workers sent were too dried to permit any satisfactory microscopic examination to be made.—F. C.

J. Davies, *Newport, Salop.*—Many thanks for queen. She was old and must either have commenced to be, or actually was, a confirmed drone-breeder. She has been very useful. F. Cheshire, Avenue House, Acton, Middlesex, is full address.—F. C.

J. H. Eld, *Stourbridge.*—*Queen laying many eggs in one cell.*—Many things have been put forth as axioms in bee matters which are really not so. It is true that ordinarily the queen lays only one egg in a cell, and that the discovery of several of the former in one of the latter may be regarded as contributory evidence pointing to the existence of a fertile worker, but in abnormal conditions the most sober-minded and matronly queen can be made to deposit eggs in huddled confusion one over the other. *e.g.* Take a strong stock with a vigorous worker, and move it to a new stand, placing a hive upon its old stand to receive its bees, now carry to the old stand all frames but one or two, taking care to leave the queen behind. The great activity of the ovaries of the worker cannot be immediately brought down to due proportion with the handful of bees now accompanying her, and she, walking over the comparatively few cells covered, will deposit eggs as they are produced until a dozen or more may be found in each cell. By degrees she will lapse into relative quiescence, and will lay only so many eggs as her bees can brood and attend. The case you submit is somewhat like this. A strong hive is stricken with foul brood. The queen is rapidly ovipositing, and is ready to lay the immense number of eggs demanded by a colony at the swarming period, but the disease rapidly diminishes the stock which would otherwise have multiplied. The

combs the bees can cover decrease in number, and the area at the command of the queen is restricted. She, as a result, deposits the surplus eggs by laying more than one in a cell. The fact of the existence of foul brood I have verified by the microscope, but to the experienced eye this was hardly needful. The absence of stores is in this case the outcome of the diseased condition.—F. C.

A. C., *Matlock.*—*Wild Bees.*—The bees sent are solitary in their habits. An individual mother, who has survived the winter, starts a nest in the spring, in which she raises a few progeny only. These bees do not sting, although the fertile mothers are capable of doing so. You have in the small lot sent three genera represented—Andrena, Osmia, and Panurgus. These bees are useless in the sense in which the question is asked, *i.e.* they could not be used as honey gatherers or as substitutes for hive-bees; but in the economy of nature their services are invaluable in fertilising different blooms and so securing seed and fruit. In localities where hive-bees are not kept these wild bees save the fruit crops and accomplish incalculable good. —F. C.

H. A. P.—*Bees and Rhododendrons.*—The honey-bee undoubtedly works upon rhododendrons, but it will not do so when other forage, more in accordance with its taste, is within reach. The amount of honey collected from rhododendrons in this country is so small that it does not affect the mass in the slightest degree when mixed with the nectar gathered from other sources. There were two kinds of honey possessing intoxicating qualities known to the ancients, to both of which Pliny alludes as well as Xenophon. One kind is collected by the bees from a plant called *aegolethron*, or 'goat's-bane,' and is found about Heraclea, in Pontus; the other, from a species of rhododendron, abounding among the Sanni or Macrones, a warlike Caucasian people on the north-east coast of the Black Sea; but it is a different species from the rhododendron cultivated in this country. Xenophon's soldiers were probably affected by the honey collected from one, or both, of these plants.

J. E. L. G.—Willesden card may be procured from Spalding and Hodge, 34 Cannon Street.

A. W.—1. The bees in gathering pollen generally keep to one flower, but this is not always the case. 2. There are so many places in the south of England which would be suitable for your purposes that we confess to a difficulty in mentioning any special one. We think we mentioned Bournemouth in a previous reply as possessing some advantages that we considered it desirable for you personally to attain.

A Poor Buzz Buzz.—See reply to A. W. (1).

A. H. Palmer.—Your suggestions are valuable, and we tender you our thanks. They have occurred to ourselves, but none of them can be carried out without that amplitude of space which would be given us in the event of the *Journal* coming out weekly.

Dublin Novice.—*Attempted Transfer from Skep.*—You no doubt failed to remove the queen from the skep the first time, and so the bees joined her there. At your second attempt you should have tied your brood-combs out of the skep into the frame of your hive, not into the super. Do not remove the super, but let the bees and the heat from them have free access to it, and the brood may hatch out, unless you have chilled it in your search for the queen. Do not trouble to find her, be content to find eggs and brood, but if the latter should turn out to be drone, you may conclude that there is a fertile worker and no queen.

E. Liddel.—*Use of Observatory Hive.*—By careful observations, regularly recorded, you may succeed in clearing up some points in dispute. It is an ascertained fact that eggs laid by an unimpregnated queen will only produce drones, and that an aged queen will lay many unimpregnated eggs. The means by which she can lay worker or drone eggs at will are to be found in a most interesting paper by Mr. Cheshire, which has recently appeared in our columns.

J. H. F.—*Weak Skep, Bees refusing Porto Rico Sugar.*—We have persistently advocated the use of refined sugar in preference to raw, and your bees have shown their preference for it. You may transfer to a bar-frame hive, cutting out and tying into the frame all the brood-combs. Do not be too eager to give foundation until they have increased in strength, and filled their own combs with brood, then give one frame at a time in the middle of the brood-nest.

Dr. Wallace.—1. *Removing Bees.*—You can remove a stock by artificial swarming. Our caution to you on p. 121 was to the effect that the usual way of 'swarming' from a bar-frame hive by removing one or more combs with bees and queen, and standing this divided stock on the old stand, is not 'artificial swarming,' but, more properly speaking, 'dividing.' You have (A) a bar-frame hive, with seven combs well covered (not your own), (B) a skep tolerably strong, (C) a bar-frame hive with comb not readily removeable. You wish to remove the whole 400 yards without increase. Proceed as follows:—Remove A from its stand, on which place an empty skep on a board; find the queen, brush her and about half the bees off the combs on to the board. These will enter the empty skep and form a 'swarm.' Remove A to a new position. Drive about half the bees out of the skep B with the queen, leave this swarm on its old stand, and remove the skep to its new position. Treat C as A. To get at the bees, the combs being irregular and not readily removeable, you must cut them out of the frames, and straighten them and tie them in again. Do all this on a fine day, when nearly all the old bees will be out, and will, as they return, join the 'swarms' on their respective stands. Remove from the stocks A and C all the comb not containing brood, close up divisions, and reduce entrances to prevent brood being chilled. In the evening remove the three swarms to the new positions, placing each on or in front of its parent stock. You may then reunite in the course of a few days. 2. *Sections in body of the hive* should have a sheet of queen excluder between them and the other combs. 3. *Foundation* should not fill the sections. A triangular piece, point down, the other corners just coming to the sides of the sections is a good plan. 4. *Sections* may be covered with enamel quilt, but in very hot weather it may be advisable to change it for a porous one.

Walter Tyzack.—*Bees Suffocated.*—The bees were suffocated by drowning, not for want of air. Those of us that have taken bees long journeys know by experience how impossible it is to take skeps long journeys by rail unless the combs are so old and tough as to be almost useless for breeding purposes. I have one in my possession that has been many long journeys; I believe a good game of football with it would scarce break the comb down, but the bees only manage to exist in it, and it is most invaluable for show purposes. It is possible, if the combs were secured by skewers and pieces of cork between them, they might have arrived safe, but the jolting of a railway carriage—most likely of the brake-van—usually proves more than sufficient for a very large number of skeps in good breeding condition. We heartily sympathise with you and your friend as well as the 'poor bees.'—'Amateur Expert.'

J. G., *Antrim.*—Your experience is rather unusual; we once had a similar case after they had been united a few days, but yours is months. Query.—Have the

ejected bees Bacillus Gaytoni? If they have not settled down we can only recommend you to 'bully' them into submission by smoke.

KERRY.—The bee you enclose is evidently a queen, although rather smashed in transit; and that undoubtedly accounts for your swarm returning, although it is rather unusual for them to forsake brood. We have often found bees work out comb-foundation, and the queen to fill them with brood far more quickly than old combs; they undoubtedly have some aversion to your combs. Write again if you wish for further advice—we shall be pleased to help you.

J. W. BATCHELOR AND OTHERS.—The worms forwarded were the larvæ of the wax-moth: they should be extruded from the hive as soon as possible.

A DISTRICT HON. SEC.—1. The Trypograph is a copying machine for producing any number of copies of circulars, &c.; it is too heavy to be transmitted through the post. 2. The colour of sainfoin honey is yellow.

CORRIGENDUM.—C. H. Haynes, Esq., Hanley Castle, Worcester, representative of the Worcestershire B.K.A. presided over the meeting of the B.B.K.A. at which Mr. Griffin read his paper on 'Honey and Wax,' and not Mr. Waters, the representative for the Surrey B.K.A., as reported.

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Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, w.c.'

[No. 172. VOL. XIII.] JUNE 15, 1885. [PUBLISHED FORTNIGHTLY.]

Editorial, Notices, &c.

THE LATE REV. H. R. PEEL.

It is with the saddest feelings that we take up the pen to chronicle the decease of the Rev. Herbert Richard Peel, the editor and proprietor of this *Journal*, which occurred on Tuesday, June 4th. His presence has for many years occupied so large a portion of the apicultural world, and it is at so recent a date that he was present in our midst, that there is no slight difficulty in realizing the fact that he has passed away from us. His encouraging and earnest words still ring in our ears; his pleasant smile, his affable and courteous demeanour, are still visible to us; his gentle, yet firm influence is still felt; the effects of his active mind, and the results of his skilful powers of organisation, are all around us. *Si monumentum quæris circumspice.* And now the energising power has passed from our sight; he has gone in the very sunshine of his day, in a manner that paralyses our thought, that eludes our mental grasp, and completely baffles our comprehension. It would be vain,—it would be impertinent, to peer into the last scene of his eventful life; rather would we desire to cast a veil over it, and leave it in the awful mystery and dark gloom by which it is enveloped. But his spirit is still with us; the work that he so bravely and self-denyingly began, and which he perhaps too laboriously carried on, remains to be accomplished.

On whom will his mantle fall? Who will advance to the front and occupy the void now created? Who will continue to raise the superstructure on the foundation that has been so wisely and elaborately laid by Mr. Peel? We must all hope and work on; the future of bee-keeping lies before us.

The Rev. H. R. Peel was born on February 8th, 1831, at Canterbury. His father was the late Very Rev. John Peel, D.D., dean of Worcester, and for over forty years rector of Stone, who was the brother of the well-known statesman Sir Robert Peel. The late Mr. Peel was therefore first-cousin of Sir Robert Peel, M.P. for Huntingdon, and the Right Hon. Arthur W. Peel, Speaker of the House of Commons. He was educated at Eton College, Dr. Hawtrey being then Head-master. Having spent two years at Bremhill, in Wiltshire, as a private pupil of the late Rev. Henry Drury, he proceeded to Christchurch College, where he remained until he had taken his degrees of Bachelor and Master of Arts. Both at Eton and Oxford Mr. Peel took honours as a classical scholar, gaining a Fell Exhibition at Christchurch of the value of 40*l.* per annum, and being presented with an honorary class in taking up his B.A. degree. He was well known at Oxford as a cricketer, and played in the Oxford eleven against Cambridge in 1851-52, as well as for the County of Kent. He was also very fond of hunting, rowing, and other athletic pursuits.

Mr. Peel married in September, 1853, Georgiana Maria, daughter of the Rev. Thomas Baker, rector of Hartlebury. In 1854 he was ordained; and from 1854 to 1855 he held the curacy of Hallow, in Worcestershire. In 1855 he removed to the curacy of Charlecote, in Warwickshire, the seat of the Lucy family, where he remained five years. In 1860 he undertook the more arduous duties of the parish of Handsworth, a suburb of Birmingham, containing 16,000 inhabitants, where he remained as rector for twelve years. During these years he performed the duties of an active and zealous clergyman, earning the esteem of both Churchmen and Dissenters, in confirmation of which we have been privileged to see two addresses presented to Mr. Peel signed by the leading Churchmen and Nonconformists of his parish. He is well remembered at Handsworth as being the promoter of working-men's clubs. Having suffered several severe attacks from rheumatic fever, in 1873 he resigned the rectory of Handsworth, and spent the following two years upon the Mediterranean Sea and its coasts. While he was Rector of Handsworth, three district churches, Holy Trinity, Birchfield, Christ Church, Perry Barr, and a little iron church at Hampstead, were erected.

On the death of Mr. Peel's father in 1875, he took up his residence at Abbot's Hill, the seat of John Dickinson, Esq., near Hemel Hempstead, in Hertfordshire. It was here that Mr. Peel first became connected with the British Bee-keepers' Association. Desirous of instructing the labourers and cottagers on his estate in the art of bee-keeping, he invited the late Mr. John Hunter, on the occasion of a

harvest home, to give them a lecture on the subject. At Mr. Hunter's request, he then became a member of the British Bee-keepers' Association. In 1878 Mr. Peel attended a meeting of the Association at the Birkbeck Institute, and, finding that it was then in a moribund condition, and Mr. Hunter having announced his intention of resigning the secretaryship, Mr. Peel volunteered to undertake the duties of that office.

Mr. Peel threw all his energies into this work, and he had soon the gratification of resuscitating the Association. One of his first steps was to obtain the consent of the Baroness Burdett-Coutts to become the President of the Association. To him was mainly due the formation of County Associations, and of connecting the County Associations with the Central, thus teaching the art of bee-keeping to cottagers in the remotest parts of the kingdom. Hertfordshire, where Mr. Peel resided, was the first Association formed after Mr. Peel became Secretary of the British; and with the assistance of Mr. Huckle he laboured hard to place Hertfordshire in that honourable position among the Associations which it still continues to maintain. Not content with establishing an association in the county in which he resided by personal visits and by correspondence he penetrated into thirty-five counties, which now boast of Bee-keepers' Associations, and animated them with the spirit and energy with which he was himself possessed. There are now forty Associations affiliated with the British, with above 5000 members.

In 1882 Mr. Peel left Abbot's Hill, and took up his residence at Thornton Hall, near Stony Stratford, Buckinghamshire, where he has put forth the same energy in the cause of bee-keeping as he did in Hertfordshire.

In the latter part of 1882 Mr. Peel purchased the proprietary rights of the *British Bee Journal* from Mr. C. N. Abbott, of Southall, in order, as Mr. Peel said, that the 'bee-keepers might have a paper of their own free from any trade interests or bias of any kind.' Into this he infused great spirit, so that its circulation was soon increased, and it was converted from a monthly publication to a fortnightly; and he has left as a heritage the hope that it will speedily be published once a-week. In 1885 the British Honey Company was established, specially for the assistance of bee-keepers, and in order that the purchasers of honey should obtain pure honey. Mr. Peel was elected its first chairman.

It would be difficult for us to specify all that Mr. Peel has done for bee-keeping. Its position as an advancing national industry is patent to all; and to Mr. Peel are we indebted in a great measure for the proud position it now occupies. To bee-keepers his loss is irreparable; but we have the consolation that the work he so resolutely set his heart upon on his inception of the duties of Secretaryship of the B. B. K. A. is now so well known and established, that prosperity must attend its future progress.

In the poultry world Mr. Peel is almost as well known as in the bee world as a breeder of dark or coloured Dorkings, for which he has taken many prizes at the Crystal Palace, and other large poultry shows.

Recently, in consequence of severe rheumatic pains, Mr. Peel has had recourse to the baths at Buxton, but his visit was not productive of any beneficial results; he returned feeling much depressed, and apprehensive that he was about to be afflicted with one of his old attacks. It is supposed that he had taken too powerful baths, and that the gout was driven into his system instead of being brought out.

On Thursday, May 28, he attended to his duties at the office of the *Journal*, and on the same day presided at a meeting of the Honey Company. On Saturday he paid a sympathizing visit to Mr. Huckle at King's Langley, who for some time had been unable to attend his usual duties owing to illness.

On Sunday, Mr. Peel conducted two services at Thornton Church: the Communion Service in the morning, and preached 'On the uncertainty of life' in the afternoon.

On the following Tuesday, we quote the report in the *Times* newspaper, 'Mr. Peel was missed from luncheon. His study-door was locked, and on an entrance being effected by the window, he was found lying on the hearth-rug shot in the left breast with a double-barrelled gun at his feet, one barrel of which had been discharged. Death must have been instantaneous. The deceased had suffered greatly from gout in the head and eyes.'

On Wednesday, Robert De'Ath, Esq., coroner, held an inquiry at Thornton Hall, touching the cause of death. The jury returned a verdict to the effect that the deceased came to his death by a gunshot wound, but there was no evidence to prove how this was inflicted.

Mr. Peel leaves a family of a wife and four children, one son and three daughters; two of the latter are married, one to A. H. Heath, Esq., of Madeley Manor, Newcastle-under-Lyne, Staffordshire, and the other to William Drake, Esq., of Launton, Oxfordshire (who was at Thornton Hall at the time of his father-in-law's decease).

On Saturday, June 6, his remains were interred in the family vault at Stone Church, near Kidderminster, where also are buried his mother and father and only brother. The funeral was attended by his near relations, and a few of his dearest friends. The coffin was covered with wreaths sent by those who wished to pay a last tribute to his memory, among others, by the Baroness Burdett-Coutts, and Dr. Bartrum. The service was read by the Bishop of Worcester, assisted by the Rev. F. W. Bickmore, rector of Stone. Mr. R. R. Godfrey, of Grantham, was present.

Mr. Peel's love for the classics acquired at Eton, and especially under the Rev. Henry Drury, continued to be almost a passion until the close of his life. When at Abbot's Hill, he used often to say that he solaced himself during the silent watches of the night while suffering from the enemy which pursued him to the bitter end—rheumatic gout—by reciting or composing Latin verse, and he would not unfrequently send passages of a difficult or

puzzling character to friends interested in classical lore. Recently, when the degree of Doctor of Divinity was conferred by the University of Oxford on one of the members of the Committee, Mr. Peel sent him his congratulations in the following form :—

Gratulor hoc D.D. titulis accedere vestris.

The acrostics which are now so popular often, also, excited his interest, nor was he by any means unskilful in unravelling their mysteries. A friend who knew him well at Handsworth speaks of him as one who was never out of temper, and who never forgot himself. This self-control, combined with his other qualities, was no doubt one cause of the influence he acquired and retained over men of ability and culture, as well as over all with whom he came in contact.

In all the relations of life, domestic and social, Mr. Peel was most exemplary, being a kind husband and an indulgent parent. As a public speaker he was clear, fluent, and convincing ; as a minister of the Gospel, whether in populous Birmingham or in rural villages such as Hallow and Thornton-cum-Nash, he was earnest and faithful, ever caring for his parishioners' highest interests ; as an employer of labour, he was reverenced and beloved by all the cottagers and labourers on his estate ; as a friend of bee-keepers, it is conceded by all that he has had no equal, that he has deeply and indelibly left 'his footprints on the sands of time,' and that all have just cause to mourn his sad and untimely end.

FUND IN MEMORY OF THE LATE REV. H. R. PEEL.

The British Bee-keepers' Association on Wednesday, June 10th, at their first meeting after the decease of the Rev. H. R. Peel. unanimously adopted the following resolution :—

'That bee-keepers and others be invited to subscribe for the purpose of raising a fund in memory of the late Rev. H. R. Peel, to be invested and the interest to be devoted annually, triennially, or at such other interval of time as the Committee of the British Bee-keepers' Association may from time to time think fit, to a prize or prizes to be given to cottagers, in connexion with the advancement of bee-keeping in the United Kingdom.'

It will be in the remembrance of most of our readers that when Mr. Peel resigned the Honorary Secretaryship of the Association there was an earnest wish, on the part of all bee-keepers, that some testimonial in recognition of his services should be raised. Since the year 1878, when the late Mr. John Hunter resigned office, Mr. Peel had, with untiring energy and indomitable perseverance, laboured diligently in behalf of the interests of bee-keepers. When we remember the low estate of the Association when he entered upon office and the high position in the esteem of the public it had attained when he resigned the secretaryship we may estimate the indebtedness of the bee-keeping world to him. A perusal of the portraiture which we have attempted in the preceding article will give some slight idea of his self-denying labours.

During Mr. Peel's tenure of office, with the sanction of the Committee, he introduced most important improvements in the organization of the Association, and by the hearty and vigorous manner in which he gave effect to the decisions of the Committee the Association had been placed on a sure and a firm basis. Mr. Peel had a peculiar tact in the formation of associations, and he succeeded in bringing upwards of forty of them into affiliation with the Central. Mr. Peel had the faculty of all good generals of kindling in the hearts of those with whom he came into contact the same enthusiasm which prevailed in his own, and therefore we find secretaries of associations, district secretaries, and experts, zealously seconding his efforts and showing their desire of carrying out his wishes. When he resigned the Secretaryship there was no cessation of his labours, the same usefulness and lofty purpose were visible while he served on the Committee, and these continued unabated to the end of his days.

Mr. Peel's high spirit steadfastly refused any personal testimonial ; but he was quite reconciled to the idea when he found that the fund was intended to be employed especially for the benefit of labourers and cottagers ; for though Mr. Peel worked for the benefit of all bee-keepers, his chief aim and purpose ever were that artisans and labourers should, through their following the pursuit of bee-keeping, have a new interest and recreation, while receiving for themselves a substantial profit.

Though this Testimonial Fund had the support of numerous bee-keepers, Mr. Peel formed the judgment that it was dragging wearily along, and that it had not met with the support at the hands of bee-keepers that the scheme deserved, he therefore determined resolutely that it should not be further proceeded with. This want of success was in some measure due, we conceive, to Mr. Peel's excess of feeling in persistently declining to allow the object of the Fund to be ventilated in the *Journal*, as he considered, from his position with regard to that periodical, that the advocacy of it in its columns might possibly be misconstrued.

But now as events have caused the resuscitation of the project there is no longer any reason for further reticence; and we shall be pleased to open our columns for the full discussion of the resolution passed by the Committee, with the hope that this fund in memory of Mr. Peel may prove a success, a glory to bee-keepers, and an honour to him whose name it will bear.

There is still remaining in the hands of the Association the amount previously collected. This will form a nucleus for further amounts; and we trust that county secretaries and others will give effect to the resolution of the Committee, and strive with earnestness in behalf of this most worthy object.

We have recently seen the result of the spontaneous feeling of esteem and devotion of a County Association towards their President ; may we in a greater and wider degree show our love and loyalty to him who has worked so nobly, continuously, and successfully, for the interests of bee-keepers.

USEFUL HINTS.

Since our last issue the weather has been almost everything by turns. From June 1st to 6th, especially the 3rd and 4th (Wednesday and Thursday), the heat for the time of year was exceptionally great, and the swarming fever at its height. We never before heard of so many swarms being lost. Scarcely a bee-keeper in our locality who did not lose swarms. After being hived, swarms left the hives in a body, a few seconds sufficing for their exit, and rising high flew direct to the place of rendezvous, whether it were the lath-and-plaster wall of an ancient mansion or cottage, or the proverbial hollow tree. Bees were literally boiling out of their hives and supers, and many a fine crate of sections was deserted when near completion. Then succeeded rainy days and cold, frosty nights. All work ceased, and half-drowned clusters might be seen clinging in front of those hives which had not swarmed. The weather again gives promise of better things, and almost every kind of bee-flora abounds. The white clover is showing itself in patches over the meadows, and there is every prospect of a bounteous honey-yield.

Second Swarms will now be the order of the day where the old system has been followed. To hives that have been supered, let such be returned, by removing the supers and shaking the swarms on the frames, a sheet being cast over all, until the bees have disappeared amongst the combs, when the super may be replaced. The young and active princesses will make short work of their hatching sisters, and the supers will stand a good chance of being completed. If all queen-cells be cut out before the swarm is returned, further swarming will become impossible. This operation, with skeps, will require to be varied. To return a swarm, an *ike* should be provided, exactly fitting the skep. This consists of a skep from which the crown has been cut away, and being placed on the stand of the old colony, the swarm is shaken into it, and the hive quickly placed upon it, and the bees ascend to their old quarters. It is a great mistake to multiply colonies unless the sale of bees be the object in view: since a few strong colonies are far better in every way than a large number of weak ones.

Feeding must be continued in the case of swarms and bad weather. For four or five days, after swarming, our own swarms were unable to leave their hives from stress of weather, and must have perished in the absence of artificial food. Now they are flourishing, and nearly ready for supers.

Examination of swarms should be made occasionally—say every two or three days—to ascertain that the combs are built straight, and to remedy any defects. *Very little*, if any, smoke should be used. A little carbolic solution applied to the top of the frames, when removing the quilt, will effectually quiet the bees and prevent all commotion, which is especially undesirable in the manipulation of newly-hived swarms. Shade should be afforded if the heat is great, the newly built combs being very tender and easily melted by a sudden excess of heat.

Clustering.—Do not allow bees to remain idle at home in clusters in front of the hive during fine weather, but at once divide, or drive such colonies, always placing the queen in the new hive on frames of comb or foundation, or both, closing up the frames of brood in the queenless part, and setting it up on a new stand. Afterwards, when the brood has hatched, it may be united to the new colony and the combs utilised or stored. Bees are now more inclined to fill up empty spaces than at any other time of the year. When second swarms are kept for stocks, confine them closely to the combs they are able to cover and stimulate by gentle feeding.

Removing Sections.—When removing sections we prefer taking off the entire rack. In the middle of a fine day raise the rack gently, all round, blowing under it a little smoke, then carry it away to an outhouse, or other quiet, shady spot, at a distance from the hive, having first cast a light sheet over the latter. Here remove all finished sections, and place the unfinished ones in the centre of the rack, filling up their places with empty ones, and replace the rack upon the hive, driving down the bees with a little smoke to prevent crushing.

Preventing After-Swarms.—Perhaps the simplest and most effectual method of preventing the issuing of second and third swarms from frame-hives is the following:—On the eighth day after the issue of the first swarm the first princess will have hatched. On this day, or not later than the ninth, cut out all queen-cells. A quick, practised eye will at once discover the young queen at liberty on the combs, but failing this, a queen-cell, open at the lower end, will afford sufficient proof of her presence in the hive. Her motions are quick and undignified, and, unlike the fertile mother, she receives no attention from the surrounding bees, except when they are bent on driving her forth from the hive to make her marriage flight. She feeds herself and moves about as an ordinary worker. After fecundation all this is changed, and she, a mother, receives the homage due from her subjects.

ABERDARE HORTICULTURAL SOCIETY SHOW.

On Thursday, August 13, an Exhibition of Bees, Honey, and Bees-wax, will be held in connexion with the above show. The schedule of prizes is on a very liberal scale, and the prizes are worth competing for. We hope that the bee-keepers in the adjoining counties of Carmarthen and Brecknock will endeavour to be present on the occasion and take part in the competition.

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

A committee meeting was held at 105 Jermyn Street, on Wednesday, June 10th. Present: T. W. Cowan (in the chair), the Rev. Dr. Bartrum, the Hon. and Rev. H. Bligh, the Rev. F. G. Jenyns, J. M. Hooker, Captain Bush, R.N., H. Jonas, D. Stewart, G. Walker, W. O'B. Glennie (Treasurer), and the Secretary. Letters were

read from Captain Campbell, the Rev. F. S. Sclater, Mr. R. J. Hinton, and the Rev. G. Raynor, regretting their inability to be present.

The Chairman, having read the minutes of the previous meeting, said he felt sure that every one present felt with himself the great loss the Committee had sustained in the death of Mr. Peel; each member of the Committee had lost a sincere and valued friend, and the cause of bee-keeping had suffered the severest blow. He (the Chairman) considered that it was only necessary to compare the condition of bee-keeping in this country at the time Mr. Peel accepted the office of Honorary Secretary to the Association in 1878 with the present time to see what an irreparable loss the country had sustained. Mr. Peel had worked with the most indefatigable zeal, sparing neither labour, time, nor expense in making bee-keeping a great national industry. He (the Chairman) felt so great sorrow at the loss they had sustained that he was unable to say much in reference thereto. In conclusion, the Chairman moved the following resolution:—

'The Committee of the B.B.K.A., having learnt with the deepest regret of the death of the Rev. Herbert R. Peel, desires to place on record the sense it entertains of the irreparable loss the nation, the B.B.K.A., and his personal friends, have sustained by his premature and most lamentable decease. For many years he acted as Honorary Secretary to the Association, and threw himself into the work with an ability, energy, and tact that could not be surpassed, sparing neither time, trouble, nor expense, to extend a knowledge of scientific bee-keeping amongst all classes throughout every part of England and Wales.

'To him the establishment of County Associations affiliated to the British Bee-keepers' Association in nearly every county in England and Wales is mainly due, and to this organization must be attributed in a very great degree the advance in the general knowledge of bee-keeping throughout his native land, which has placed England in so short a time at least on an equality with other countries.

'All this work was done from a sincere desire for the public good and the promotion of the general welfare of the community.

'The Committee, in expressing their sincerest sympathy with Mrs. Peel and his sorrowing relatives, beg to assure them that the recollection of Mr. Peel and his many good deeds will be ever present with them, and his name will always be associated with the progress and extension of bee-culture in England.

'They trust that the consciousness of the good effected by Mr. Peel will afford his relatives some consolation under the sudden and grievous blow which has fallen upon them.'

A copy of the same be sent to Mrs. Peel.

Dr. Bartrum seconded the resolution.

The Chairman said he felt sure that he was speaking the sentiments of every bee-keeper and well-wisher to the cause throughout the United Kingdom in proposing that some steps should be taken to raise a fund for the purpose of carrying out those objects which were dear to Mr. Peel, and to perpetuate his memory. He moved the following resolution:—

'That bee-keepers and others be invited to subscribe for the purpose of raising a fund in memory of the late Rev. H. R. Peel, to be invested, and the interest to be devoted annually, triennially, or at such other interval of time as the Committee of the British Bee-keepers' Association may from time to time think fit, to a prize or prizes to be given to cottagers, in connexion with the advancement of bee-keeping in the United Kingdom.'

The Hon. and Rev. H. Bligh seconded the motion.

The Secretary was requested to make this known through the medium of the *Journal of Horticulture*, the *Bee-Keepers' Record*, and the *British Bee Journal*.

It was resolved that the pamphlet on the *Management of Straw Hives* should be published in Welsh, and that the first edition should consist of 5000 copies.

SUSSEX BEE-KEEPERS' ASSOCIATION.

The annual meeting of this Association took place at the Town Hall, Brighton, on Wednesday, 27th May. Amongst those present were T. W. Cowan, Esq., who in the absence of the Earl of Chichester, took the chair, General Dickinson, Mrs. Arbuthnot, B. Lomax, Esq., Mrs. Philps, Rev. N. Andrewes, Hon. Secretary, and others.

The Chairman, in apologising for the absence of the Earl of Chichester, Viscount Gage, and others, said he did not suppose they must take it that the small attendance of members present that afternoon was due to any lack of interest in the work of the Association. They paid their subscriptions and supported them in various other ways, and he thought the reason could be found in the fact that they had no fault to find with the Association, or else they would certainly attend and ventilate their grievances. In reviewing the report which had been sent to all the members, he said, although through unavoidable reasons it was rather late in appearing, it was on the whole satisfactory and showed that the Association had done more work during the last year than in any previous year. The Duke of Norfolk, the Duke of Richmond and Gordon, and Sir Thomas Brassey, M.P., had become members and had consented to become vice-presidents, and the Duke of Richmond had written expressing his lively interest he took in the work of the Association. It would be seen that the number of members had increased to 349, of whom 149 were cottage members. The annual show was held at Tunbridge Wells, and was acknowledged to have been one of the finest shows of the season. The silver medal was awarded to Mr. G. Hallam, the bronze medal to Mr. T. Stodhart, and the certificate to Mr. T. Marsh. The subscriptions amounted to 70*l.* 17*s.* 6*d.* and donations to 12*l.* 8*s.* The receipts from bee tents, of which they had two, were only, he regretted to say, 22*l.* 1*s.* 11*d.* This was a great falling off from previous years, but he thought that could be attributed to the fact that the experts had no one to assist them, and that many persons gained admission to the bee tent without paying while the expert was busy manipulating. The committee recommended that the local shows should furnish one or two men to assist experts in taking money and tickets. At one of the shows the tent had not arrived, owing to the secretary of the flower show forgetting to send it on, and at another no bees could be found, so that, in all, only eighteen shows were visited, or the same number as last year. It would also be seen that a larger sum had been given in prizes than before and that they had paid half the cost of a new tent. The 15*l.* 15*s.* 7*d.* deposit last year was reduced to 4*l.* 4*s.* 11*d.*, and he thought the balance-sheet satisfactory. The committee also recommended that the county be divided, as the work had so increased that it was impossible for the present hon. secretary to do the work alone. The county was divided into sixteen districts for the circulation of the *British Bee Journal*. The experts had done their share of work, Mr. Overton visiting eighty-nine members in the spring and 115 in the autumn, and Mr. Taylor forty members in spring; but, owing to a misunderstanding on his part, none of the members in his district were visited in the autumn. He moved that the report and balance-sheet be received and adopted.—This was carried unanimously.

Rev. N. Andrewes said he found the work more than he could do by himself, and he thought there was quite enough work for ten. The committee thought so too, and he moved, and it was carried, 'That the County be

divided into ten divisions, P. H. Phillips, Esq., being asked to undertake the work for the eastern division.'

After a long discussion it was moved by General Dickinson, and seconded by Mrs. Arbuthnot, and carried, 'That members whose subscription is only 5*s.* shall pay 1*s.* 6*d.* extra for each visit of the expert, and cottagers only paying 1*s.* an extra fee of 6*d.*' It was shown that the Association was a considerable loser, as they had to pay the travelling expenses of experts.

Votes of thanks were passed to the President, Vice-Presidents, officers and committeemen for their services during the past year, and they were all re-elected, with the addition to the committee of General Dickinson, Canon Sutton, and W. Woodard, Esq.

The drawing for the two hives then took place, the successful members being Mr. E. Milwood, Henfield, and cottage member, G. Alce, Groombridge.

A cottager present said that last year she had herself made a clear profit of 14*l.* on five hives, and attributed her success to the valuable lessons she had acquired from the Sussex Association.

General Dickinson said that nine members out of ten did not know on what terms they could have the visits of the expert, and suggested that they should have a card with the scale of fees printed, which they could present to the members when they visited them.—This suggestion was adopted, and a vote of thanks to the Chairman concluded the proceedings.

SOMERSET BEE-KEEPERS' ASSOCIATION AT TAUNTON.

The Council of the Somerset Agricultural Association kindly admitted the Bee Tent of the S.B.K.A. on their show grounds on the occasion of their first annual show at Taunton, on May 20th, 21st, and 22nd. Mr. T. B. Blow, of Welwyn, manipulated and lectured on the 20th and 21st, but unfortunately, on account of the weather, to very limited audiences; the other attractions of the Agricultural Association also taking up the time of many visitors. On the last day the Rev. C. G. Anderson, Hon. Sec. of the S.B.K.A., manipulated and lectured; the weather was again most unsatisfactory. Mr. T. Hallett, gardener at Hill House, Otterhampton, assisted in the Bee Tent during Mr. Anderson's manipulations. The meeting was a very disappointing one, so far as the takings at the tent door were concerned. No honey was exhibited.

The following is the price for appliances:—1. For the best observatory hive stocked: no entry. 2. Best collection of hives, &c.: 20*s.* and 10*s.*, Mr. E. J. Butt, Barnstaple. 3. Best and cheapest hive, not to exceed 10*s.* 6*d.* in price: first, 10*s.*, Messrs. J. Dines & Son, Maldon, Essex; second, 5*s.*, Mr. E. J. Butt. Highly commended: Messrs. E. M. Hart & Co. 4. Best feeder for summer and winter use: 5*s.*, Messrs. Dines. 5. Best sample of thick foundation: 5*s.*, Messrs. Blow & Ellis. 6. Best sample of thin foundation: 5*s.*, Mr. E. J. Butt. The judges were C. Lance, Esq., Stoke Court, Taunton, and W. N. Griffin, Esq., San Remo, Weymouth.

The Somerset B.K.A. Bee Tent will be at Bath Rose Show on July 2nd, and at Wincanton on July 28th.

WORCESTERSHIRE BEE-KEEPERS' ASSOCIATION.

A meeting of the Committee of the above Association was held at the Guildhall, Worcester, on June 6th. The Rev. Norman Ogilvy in the chair. The following resolution was passed, and the Hon. Sec. was requested to send a copy of the same to Mrs. Peel:—'That this Committee begs to offer to Mrs. Peel and the family of the late Rev. Herbert R. Peel an expression of their deepest sympathy in the severe loss they have sustained, and on behalf of the members of the Worcestershire B.K.A. wish to record their sense of the kind interest Mr. Peel took in this Association in particular, and the valuable help he gave it; and also their appreciation of the great services Mr. Peel has rendered throughout the country to the cause of scientific bee-keeping.'

It was determined to hold the annual show of bees, hives, and honey at the end of August, at the meeting of the City and County Horticultural Society, to be held at Worcester.

HANTS AND ISLE OF WIGHT BEE-KEEPERS' ASSOCIATION.

The following is a complete list of the donors to the President Fund, announced in our last issue. Unfortunately Lord Henry Scott expressed his desire to contribute 5*l.* too late, the Fund having been closed, so that his offer had to be declined.

	£	*s.*	*d.*
Lonisa, Marchioness of Waterford	5	0	0
The Earl of Carnarvon	5	0	0
The Countess of Malmesbury	5	0	0
The Earl of Northbrook	5	0	0
The Viscount Eversley	5	0	0
The Lord Mount Temple	5	0	0
The Lady Colville	5	0	0
The Lord Tennyson	5	0	0
Mrs. Shawe Storey	1	0	0

	s.	*d.*
General Maberly ...	10	0
Rev. Arth. B. Cotton	10	0
Mrs. Prior	10	0
Miss Palmer	10	0
Rev. F. Hopkins ...	10	0
Mrs. Charles Stuart	5	0
Mrs. Maberly	5	0
D. Fullerton	5	0
Rev. H. C. Hawtrey	5	0
Mrs. Peacocke ...	5	0
James Tinker ...	5	0
Colonel Farquhar ...	5	0
Mrs. Best	5	0
D. Preston	5	0
H. Smith Wright ...	5	0
Sir W. B. Parker, Bt.	5	0
E. Wigram ...	5	0
Rev. R. Parker ...	5	0
Admiral Phillimore	5	0
Mrs. Phillimore ...	5	0
Mrs. Standish ...	5	0
H. S. Young	5	0
J. P. Stilwell	5	0
Mrs. Shears	5	0
Henry Daniell ...	5	0
Mrs. Myers	5	0
R. Cope Morgan ...	5	0
W. Wynyard	5	0
Com. Suckling, R.N.	5	0
Miss Goodlad ...	5	0
Miss L. Goodlad ...	5	0
Rev. W. E. Medlicott	5	0
Rev. J. P. Bartlett ...	5	0
A. Robinson	5	0
Miss Grimes	5	0
Dr. Ticehurst	5	0
F. G. Dalgetty ...	5	0
Rev. F. de Paravicini	5	0

	s.	*d.*
H. F. Hart	5	0
P. C. de Crespigny	5	0
Mrs. Bellairs	5	0
E. H. Bellairs ...	5	0
Miss Lamb	3	0
F. Beckford	2	6
Rev. P. P. Izard ...	2	6
James Tee	2	6
Joseph Addison ...	2	6
Miss Bridge	2	6
C. Martin	2	6
H. Langdon	2	6
W. Hunt	2	0
R. Legg	2	0
W. T. Joyce	2	0
S. Hobbs, jun. ...	2	0
J. Frowd	2	0
T. Giles	2	0
W. Weller	2	0
J. Downton	1	0
W. Candy	1	0
J. Whitehurst ...	1	0
H. Tubb	1	0
Miss Stock	1	0
W. Burgess	1	0
C. Yeomans	1	0
A. Brooker	1	0
G. Holley	1	0
A. Candy	1	0
Jas. Hixon	1	0
Miss F. Coekburn ...	1	0
E. Ainsley	1	0
G. Horner	1	0
J. Threlfall	1	0
A. Roots	1	0
C. White	0	9
F. A. Sharp	0	6
G. Ogg	0	6
	£55	7	3

LEICESTERSHIRE BEE-KEEPERS' ASSOCIATION.

A lecture on 'The Hive and its Inhabitants,' was delivered at Melton Mowbray, on June 5th, by Mr. Walter S. Pridmore. The Rev. Dr. Collis kindly consented to take the chair. There was a fairly good audience, and that the lecturer succeeded in awakening a strong interest in his subject was proved by the fact that some new members were added to the Association, and a good number of *Modern Bee-keeping* sold.

Correspondence.

**** All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

THE LATE REV. H. R. PEEL.

It was with the deepest regret that we all learnt of the death of the Rev. H. R. Peel, and I feel sure all bee-keepers will concur with me that we have sustained a great loss. The late Mr. Peel was truly a friend of the bees; he was always ready to advance the industry we have so much at heart, and was never backward in giving a helping hand.

Personally, I feel that I have lost a kind and good friend. At this crisis, however, we must not stand still, and if we appreciate the noble and good work that Mr. Peel has so unselfishly begun, we must endeavour to press on the cause, and by united effort follow the example so zealously set to us. The Devon and Exeter Bee-keepers' Association have written a letter of sympathy to the bereaved family, which has been most kindly acknowledged by Mr. Herbert Peel.—WM. N. GRIFFIN, *San Remo, Weymouth, June 11th.*

PHENOL AND FOUL BROOD.

I am sorry to see that Mr. A. B. Johnston on page 174 advises bee-keepers having foul brood to destroy bees, and burn hive and every thing that has been in use in and about it, because he has not succeeded in curing his bees of foul brood with phenol. I would rather recommend when one remedy fails to try another, and having seen and known large apiaries completely cured by fumigating with salicylic acid, I should advise him if he has not yet done so to try it. There are cases when a hive is beyond cure, but they are extremely rare; and I have known cases where salicylic fumigation has effected a cure when every other remedy had failed. It is so simple a process and inexpensive that it would be certainly worth the trial.—THOS. W. COWAN, *Comptons Lea, Horsham.*

IS PHENOL A CURE FOR FOUL BROOD?

As requested, I have forwarded to Mr. Cheshire some of my diseased combs which contain some dead larvæ, and shall be very glad to hear of his experience with his two stocks after inoculating this disease into them.

Although 'The Stationmaster at Winsford' says he carefully read my letter, he has not made a correct 'gathering' when he thinks that I purchased phenol and mixed it myself. Last season I purchased the 'Cheshire Cure for Foul Brood,' and poured on the diseased combs syrup diluted with it, with the result already recorded. And this spring I used Calvert's No. 1 carbolic acid with a like result.

And yet this confident 'Stationmaster,' who speaks without 'hesitation or fear,' and who says it is useless my recommending bee-keepers to destroy their diseased bees and appliances, boldly declaring it 'all nonsense,' and asserting that *his* experience of the 'Cheshire cure' is such as to warrant its recognition everywhere, says there can be no question but that this treatment will destroy this pest.

Before I would hear him repeat the above, I would see some of his stocks thoroughly infected with the disease that has troubled me, and let him try his 'isolating' process, his Cheshire cure, and do his best with any materials *he* chooses. And when he can say that 'he has not a single comb tainted,' he will then, I think, be able to speak much better for its efficacy.—ARTHUR B. JOHNSTON, *Brick Hall, Killyleagh, County Down.*

EXPERIENCE IN QUEEN INTRODUCTION.

I have introduced four Ligurian queens after Mr. Roland Green's plan (*Bee Journal*, Nov. 15th, 1884). Three succeeded, but the fourth I found dead in the hive next day. This hive was a swarm on May 26th, which had lost its queen. Before introducing the new queen I made several careful examinations, and could see neither queen nor egg nor brood in any stage. The same day, June 5th, at 6 p.m., I introduced the new Ligurian queen. I write this to warn any one who may think of introducing valuable queens to bees which have been many days queenless by this method. At the same time I feel perfect confidence in the plan if the old queen is removed the same day. My queens were from Messrs. Abbott Brothers, so I cannot see how the queen can be blamed, and I carried out all the directions faithfully.—L.W.

SUGGESTIONS FOR COUNTY ASSOCIATIONS.

From occasional grumbles in the *Journal* I gather that very many members are dissatisfied with the working of the County Associations. That is to say, they think they should do something more than merely extend the knowledge of the frame-hive, which, I think, may now be said to be widely distributed. A writer a few weeks back thought people ought to subscribe out of mere gratitude for what the societies have done. This, however, will not do in these utilitarian days, when money is not too plentiful, and people want something tangible for it, when they part with it. I may be told members get a visit from an expert, who tells them how to 'shut the stable-door when the horse is stolen.' Now, in most places where the frame-hive exists there is someone who is a thorough bee-master, and his neighbours come to him at all times for information, which is gladly given.

Another advantage members have is the use of the *Bee Journal*, six weeks after date of publication (my experience). Then, again, members have the advantage of sending their honey for sale to the annual show, and for this they are expected to pay a commission on the sale (this is a real advantage—to the Association). I sent 24 lbs. last year of splendid honey. It cost me 7*s.* railway carriage alone to and fro (as it was not all sold) in addition to the commission on the sale.

As far as I know this is all I could put before a person anxious to join a society. My object in writing is to suggest to Associations that they should now make themselves of some real good to their members. I would suggest that the local secretary should have charge of a small extractor, also a smoker, and any other appliances a cottager cannot be expected to buy himself; there might also be a source of profit, as they might be lent to other persons than members at a small fee. To give a cottager a frame-hive, and no means of getting his honey out, is like trying to open an oyster without a knife. Sections in many places are quite unsaleable; here for instance.

My own Association has offered to meet my views in this direction if I get a certain number of members; this is easier said than done, for people have an idea you want to make profit out of them, and cannot understand anyone taking an interest in the work for the mere love of it; until they get the mania themselves, for it is astonishing what enthusiasts bee-keepers are. I just throw out these ideas, and I should be glad if older bee-keepers would add other suggestions, and so greatly increase the work of our societies.—WEST MIDLAND.

BEE-KEEPING AND THE LABOURING CLASSES.

I have for some long period watched with considerable interest to see if any practical suggestions would be offered on this subject. Mr. Webster occupies two columns of your valuable *Journal* in the mid-May issue,

but I cannot see that he in any way forwards the matter, as he merely shows that his large profit of nearly 300 per cent is due to the extraordinary luck he had with one hive and the fact that he can sell his own honey retail. Another correspondent some time ago suggested that bee-keepers should start cottagers with a swarm on condition that the donor should have the whole of the honey the first year. There are not a very large number of bee-keepers who are willing or able to part with swarms for nothing, and on this ground alone the suggestion seems useless; but it appears to me more—it is harmful, for the incipient interest that the donor might have in bee-keeping would be blunted, if not lost, by the ever present feeling that for a weary twelve months he had got a sort of bill of sale over his hive which deprived him of all his profit.

I am quite a novice in bee-keeping, and do not pretend to put forward any very valuable suggestions; but there is one thing I do wish to point out, and that is, that to encourage bee-keeping among cottagers, cheapness of the absolutely essential apparatus for bee-keeping is in the first instance '*the*' requisite. My personal experience is that cheap apparatus does not exist, or at least I cannot find it; and I suggest that some gentleman or gentlemen should undertake to supply cheap apparatus and to guarantee it good in its way. I hope the gentlemen who advertise in your columns will forgive me for advocating a 'co-operative or store' system, but the matter lies in their own hands. Let me illustrate what I mean from their catalogues, trusting that they will not think I have any ill-feeling in the matter. Mr. Neighbour's cheapest top feeder is 2*s.*; the cheapest feeder of all 1*s.* 6*d.* Mr. Redshaw's cheapest feeder is 1*s.* and 25 per cent for carriage. Mr. Meadows' is either 1*s.* or 1*s.* 6*d.*; and so on. I cannot see why excellent feeders should not be made from 3*d.* to 4*d.* My first hive that swarmed this year was fed with an apparatus composed of a blue bottle—a piece of perforated zinc and some muslin. Bee-veils are charged 1*s.* 6*d.* and upwards. They need not cost more than the feeders. Floor-boards are 2*s.* to 3*s.* in Messrs. Neighbour's catalogue. I give a shilling, and feel confident they might be had for less. Straw hives are charged 2*s.* 6*d.* and upwards. But a few years ago they were purchased by me at a shilling in the market. I still have two left that were bought at that price, and they are most undoubtedly well made.

I know many objections may be raised, but I have not written these lines before consideration, and the above articles mentioned are but a few of the necessaries that I am sure can be supplied to cottagers at a less price, for we can hardly expect 'Hodge' and his successors to invent cheap articles for themselves.—LEICESTERIAN.

BEE-KEEPING IN GUERNSEY.

Not having seen in the *B. B. J.* any notice of bee-keeping in Guernsey, I beg to send some of my experiences.

I commenced with two skeps purchased from farmers in the spring of 1884. There are few frame-hives in the island, and the annual destruction of bees is the consequence. I transferred my bees to bar-frame hives; one hive only sent out a swarm, which took up its abode in the roof of a cottage close by, where it was joined by a wandering swarm. I was called away to England, and was unable to attend to the bees for over a month, and when I took them, was obliged consequently to take them a couple of miles away for about three weeks. I sent my gardener with them, and he put the skep mouth downwards on the floor of the cart, consequently about half the bees were smothered. I eventually joined them to the parent stock, and had two strong hives. I could not induce them to touch the sections, and all the honey they made was only enough to keep them through the winter. This year I let them alone till the first week in March, when I found them with plenty of stores, and strong in bees.

In consequence, I suppose, of cold wind and weather, not a bee appeared on the crocuses, though they were numerous close to the hive, neither have I been able to discover a bee on the apple or pear-blossom.

In the beginning of April I found one hive still with a fair amount of stores, the other with none, so I fed them with dry sugar (as enclosed), in a dummy feeder, and found they took it freely, the frames being covered with enamelled American cloth.

In the beginning of May I found them strong, with plenty of brood, and one hive with some old stores, but not an ounce of new honey. I removed the American cloth, and gave them water under the porch, continuing the dry sugar feeding.

The only plant on which I saw any bees up to the last day of May was that enclosed, of which I do not know the name. On the above day we had our first fine weather, and since then the bees have been working merrily on the strawberries and beans; they have also worked the oaks, and I forgot to say that during part of May some appeared on the currant-bushes.

About the middle of May I gave one of the stocks a frame of body-sections, as they were so strong I was afraid they would swarm.

I have to-day (4th June) again examined them, and found some new comb honey in the frames, and a considerable quantity in the body and sections, some of which were drawn out well, in others the guides had been ignored. I should mention that I placed the sections at right-angles to the frames, and in those in which the guides had been neglected the comb was carried through three or four of the section-boxes. Finding the bees strong, full of brood, and hard at work, I determined to give them a super, and removed the worked-out sections from the body of the hive to the super; here I found a difficulty on which I had not calculated. In placing the sections in the body of the hive, the entrance-slits had to be placed vertically; on removing them to the super they had, of course, to be horizontal, and I shall look with interest to my next examination, the result of which I will communicate to you if you find this lengthy communication worth publishing.

Perhaps you will oblige me by giving the name of the enclosed plant, and also by saying if the sugar I have used is the best for dry feeding. I am delighted with the dry feeding, as I have found the result excellent, and the trouble nothing: no making syrup and constantly pouring it into the feeder; I fill the dummy and find it enough for about a fortnight.—H. A. S., *Guernsey, 4th June*, 1885.

[The flower enclosed is *Cotoneaster microphylla*, an evergreen shrub, and an excellent plant for covering walls. Its coral red berries in the autumn produce a very lively effect at that season. The sugar is very suitable for the purpose, and easily obtained: the Porto Rico sugar is however preferable.—ED.]

BEE-KEEPERS' APPLIANCES.

At a recent meeting of bee-keepers, at which I was invited to attend, to assist in the arranging of the schedule of prizes for the forthcoming county show, an objection was raised by one member to the class set apart for the best collection of bee appliances, on the grounds that it was productive of harm rather than good, for people to see the number of articles in use among bee-keepers, stating that new beginners think they would have to purchase all, or a greater part, of these appliances before commencing bee-keeping. If they think that, they would certainly be in error, and would be contrary to the teachings of our most prominent bee-keepers; and no one more so than Thos. W. Cowan,

Esq. But even this is no reason why we should not see the different appliances in use in other apiaries, which, were it not for such exhibitions, perhaps, would never come under our notice. If we attend an agricultural show, we see all kinds of modern implements and machinery, from the ordinary plough to the steam thrashing, winnowing, and elevating machines; and who would venture to tell any one that all these things were necessary for every farmer? Yet they are of great use in their proper place; and so also are wax-foundation machines, and the most modern honey extractors, &c. —C. W. C.

AN AMATEUR IN SEARCH OF THE IDEAL PURCHASER.

I am an amateur among amateurs, eagerly watching for whatever may appear affecting the interests of bee-keepers, *i.e.*, all who desire to keep bees at a profit; and I am grievously disappointed. Philanthropists—usually clergymen—favour a village with a visit, for the purpose of enlightening the villagers in the matter of bee-keeping, and assuring them that it is possible to considerably augment their scanty incomes by keeping bees on the anti-sulphur-pit system, quoting in the course of their lecture prices ranging from 1*s.* per lb. to 2*s.* 6*d.* for the same quantity. In several instances I have applied to the lecturer, but have not succeeded in obtaining the name of the purchaser. The writer of a report published in the *Journal* quoted 1*s.* 3*d.* per lb. as the price he got; and in answer to my inquiry he told me 'he sold all his honey to his friends and acquaintances,' thus annihilating my ideal market for the article. 'The unkindest cut of all,' however—unkind in its effects, not in its nature, as I am grateful to the reverend gentleman who gave it—is in the following:—'I would urge you not to think that you could (as a beginner) add to your income by bee-keeping.' 'It is wrong to buoy up beginners with the idea of making a pot of money with bee-keeping; it requires several years' study and practice before it can be done.'

Has an ordinary villager time or capacity for several years' study and practice? And there are, alas! other than the farm labourer who are without time or capacity for such a purpose. A *connoisseur* in bee-keeping—a winner of prizes, too—has just written that 'the sale of honey this last year was very slow indeed. I shall therefore sell all swarms I can in this and next month, as the honey season is a lottery, with too many blanks to a prize.'

How anomalous are theory and practice or experience! If our zealous propagandists were to limit their statements to whatever is reliable and practicable, they would cease to raise the expectations, and prevent the sequential disappointment of such men as—A North Hants Amateur.

HINGES FOR HIVES.

Being rather taken with an illustration of some hinges for beehives, which appeared in your valuable *Journal* on the 15th June, 1884, page 208, I tried everywhere to get some, and at last found a place where they could be purchased.

Thinking that others of your readers may be in the same fix, I write to let you know that they may be had of Mr. H. C. Whincop, 6 Cross Street, Finsbury Pavement. The ones I got are made of polished brass, with levelled edges, and very well finished off; they give quite a finished look to a well-made varnished hive, but I believe they may also be had in iron. I can strongly recommend bee-keepers to try a pair, as they are most convenient. I should also recommend that they be put on in front of the hive, so that the roof opens up from the back.—F. F. McKenzie, *The Warren, Loughton, Essex, June 8th.*

GRANULATED HONEY.

I am hoping that now the question of granulated honey having been raised again by the Rev. J. Lingen Seager, who said, 'This is a question that has frequently been raised, and, as far as I know, never satisfactorily answered. It is to a great extent an evidence of quality, and an accident of temperature.' If it is inferior in quality when granulated, it is very important we should know why it is so; when it loses its aroma, also what means should be adopted to prevent it. I have previously suggested that the market price of honey should be quoted in the *B. B. J.*, as is done in America. I am frequently asked 'What is the price of honey. Can you sell some for me as I cannot sell it?' The white clover is fast coming out, and then a prospect of a good honey year.—R. Thorpe, *Langrick Ville, 6th June.*

[When the Honey Company is in full work, we hope to be enabled to furnish the market price of honey.—Ed.]

BEE FLOWERS.

What a deal has been written about these! But what is a bee flower? Is it every one from which a bee sucks? But it tries its best to get something out of most, and but few things come amiss at one time or for one purpose or other. Contributions are levied even on putty and exuding turpentine. But what is the use of mentioning all those wild flowers which no one will cultivate? Here in Cornwall the hedges made of turf bear so many flowers that the bees are constantly supplied with a variety of sweets, but there is no 'glut' of honey from any one flower, and the climate is uncertain and often unfavourable. Even the apple-blossom, of which there was a great quantity this year, failed to serve the bees as it would in finer weather. Now we are looking forward to clover, but at the present moment raspberry blossoms are much frequented, and so is the old-fashioned berberry of attractive fragrance. Queen-wasps too are found in great numbers on these. I believe there is no early flower so well worth cultivating as white arabis. Limnanthes, much frequented of course, comes into bloom with many wild plants.—South Cornwall.

A SECOND CASE OF ARRENOTOKIA.

I have received amidst numerous queens, for which my best thanks are tendered, one from Mr. J. P. Sambels, which he states was hatched last October and has been a most prolific drone-breeder. Upon dissection, however, I find she had mated and that the spermatozoa abounded in the spermatheca, but were collected into a close mass. I drew attention to this question of arrenotokia in a few lines of the issue of May 15th, page 174. But this discovery of a second example of it leads me to more fully explain. The name 'arrenotokia,' applied by Leuckart in 1857 to a case similar to the one we are considering, indicates that the queen, as distinguished from a normal drone breeder, is fully furnished with spermatozoa, and is yet incapable of fertilizing her eggs. The possible causes are various, since the mechanism so wondrously delicate and complex, which pays out the spermatozoa as they may be required, and which I explained a few months since, may fail in its muscles or nerves, or even the spermatozoa themselves may be defective, as actually appears to be the case in this instance.

Leuckart, in the *Bulletin Académie Royale de Belgique*, 1857 (pages 200–4), goes into this question, and cites an observation of a spermatheca containing compacted spermatozoa. Can the lateness of the season at which this queen was hatched in any way explain the matter? Drones, at the date given, are normally gone; but the progeny of fertile workers are then discoverable in the prime of youth, as well as old drones permitted to live in queenless stocks. Speculation is easy, and the possibility suggests itself that the defective spermatozoa owe

their faults to the fact that old or abnormal drones yielded them. Comparing facts will in the end clear up these curious and interesting problems.

Failure of the nerves which energise the spermathecal valves will lead, of course, to the same result, since the spermatozoa will then be securely locked within the spermatheca, and this condition M. Donhoff claims to have produced by simply pressing the last abdominal segment with a nipper. The ganglion lies in contact with the spermatheca. Slight pressure certainly might easily injure both.—F. R. Cheshire, *Avenue House, Acton, W.*

Foreign.

BURMAH.

Apis Dorsata, the large Bee of Java, captured at last.—I have at last captured a swarm of *Apis dorsata*, and have it safely hived in an observatory hive. There are about half a bushel of bees, and are they not magnificent fellows? My hive is about 6 feet tall, and 3 by 3 wide and deep. The bees were secured on a very high tree, on which were thirteen other colonies. The limb was cut off, and forms the top bar for the comb, and hangs like a moveable frame in the hive. I have had a sheet of glass 9 by 16 inches, put into the back of the hive, and a door made to shut all up, when one does not want to watch them. The brood-comb is about 14 by 16 inches, and is solid with brood. I see no pollen or honey in the comb. There are young and old bees. The old have the abdomen a bright yellow, with narrow black bands, while the young (?) are much darker in colour; but I cannot speak with much certainty, for I have not studied them long enough yet. They sting, but the sting is not much worse than that of the *Apis indica*—at least I judged so, for in putting them into place, my assistant was stung four times, but it was not followed by swelling. The sting is much larger than the common bee, of course; and as one of my Karens said last night, 'It makes a hole at once.' Yet, I judge that it is bearable.

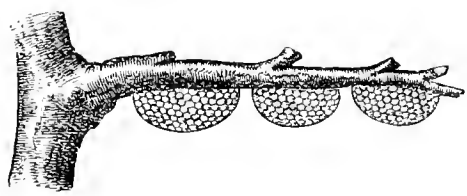
Their wings are beautifully irradiant; and looking at them on their comb by night, with a strong light, they are most beautiful. This morning they are going out of and into their hive, and looking all about their home. Will they stay and go to work or not? is the question; we shall see.

One thing I notice: they are far less excitable than *Apis indica*. They move slowly, do not dash about their cage, and struggle for exit like that bee. They impress one, however, with an idea of 'reserve power,' if they have a mind to use it. I do not think they are quick on their combs to repair damage, but I cannot yet speak with definiteness. I also have a swarm of the 'Melipona' working well.

I have been studying the *Apis dorsata*, and there seem to be two kinds of this bee in Burmah, each quite distinct, though I have not yet secured specimens for comparison. One kind is yellowish in colour, and usually builds nests on the limbs of very high trees, or in rocky cliffs, while the other is nearly black, hairy, and builds in thickets or on limbs of trees, or on creepers, often near the ground. Both are unicomb bees. The former kind is often vicious; the latter is very gentle, according to all reports, and the natives have no fear of it at all. They often approach the nests of the latter by daylight, and take off pieces of comb, without smoking or protection of any kind whatever, and without often being attacked by the bees. The former kind defends its nest with great vigour; and if they once set upon an enemy, they follow very persistently for a long distance, and sometimes natives thus pursued must make to a neighbouring stream to escape. One ruse for escape is to break off a thickly leaved bush and plunge into the water, and allow the branch to float down with the current, while the fugitive plunges into the water. The bees then follow the branch down stream, and lose sight of their victim. Yet, the first kind with the yellow markings is not always so vicious, as they can be easily subdued with smoke; and if handled carefully they seem to be as gentle as many kinds of *Apis mellifica*. Both kinds leave Burmah at the beginning of the rains, and return on February 1st each year. They usually return to their former place of abode. This is especially true of the yellow kind, which occupy a chosen tree or trees in a particular locality, year after year, so that the natives buy and sell these trees as valuable property.

I judge that these bees migrate to some distance to the north, for these reasons: 1. The reason why they migrate at all seems to be the exposed position of their nests, on the under side of the limbs of high trees, exposed to all weathers. The high winds and the violent showers of the beginning of the monsoons would always destroy their nests. I never saw a nest survive the rains; hence, migrating on account of the rains, they must needs go to a climate where the rains are less violent, or where they can find sheltering cliffs in which to build. 2. When they return they are often found resting near the ground, before selecting the tree on which to build a new home. Sometimes they will rest there a week and then take flight again. At such times they are very cross, and the natives are very careful not to go near them. There are no cliffs or rocks in Burmah in which these bees can build; if there were, they might remain here the year round, as I understand they do in Ceylon and in Northern India.

In the Padung-Karen country, about eighty miles north-east from Toungoo, these bees are in some sense domesticated, as is also the *Apis indica*. In order to secure the services of the *Apis dorsata*, the Padungs dig a trench in a side hill, and drive a stout stake, inclined about 45° toward the down slope of the hill, into the ground, and lean branches of trees against the stake on either side, making a shield from the wind. The *Apis dorsata* returns to these places year after year, and the natives secure bountiful harvests of wax and honey, always leaving some for their yellow workers. May it not be that the *Apis dorsata* builds one comb, only because it does not usually find a place to build double combs? The comb is so large that it must indeed be a large limb of a tree to give room for double combs.



How the combs are built by *Apis Dorsata*.

I am strongly inclined to believe that the *Apis dorsata* can be domesticated, especially the black-coloured species. Yet, to insure success, doubtless much study must be given to the habits of this bee.

The fact, as I am informed, that in regions of less rain, in cliffs and rocks, these bees are found year after year, goes to show that migration is not necessary to this bee as to 'birds of passage,' &c.; that if the conditions are favourable they may be kept the year round. The fact that these bees can be mistaken for hornets by the natives, as in Mr. Benton's experience in Ceylon, shows how little we can depend on their judgment in such matters.—A. Bunker, *Toungoo, Burmah, Feb. 28, 1885.* (*American Bee Journal.*)

BEE-KEEPING IN AUSTRALIA.

It is now thirty-three years since I took my departure for this great continent—great in everything for the great future—and not the least of all, its great colonies of bees either cultivated or wild. It is fifty-three years since I

first took practical interest in this noble insect in the old country. It affords me much pleasure to write you from this distant clime, although now so well shortened by steam fleets and skilful ingenuity. Now, how great are the magnificent opportunities such as should make the apiarian's heart glad compared with half a century back. We seem to be living really in a most wonderful epoch in the rolling world of apicultural pursuits.

As regards the historical date when bees were first landed in these colonies I am unable to define. Wool and gold have held a long and high festival and have had an extraordinary influence, so that the bee-keeping industry has been very slow. Many ups and downs, frustrations and grave disappointments, have been prevalent for many years, and all against the founding of many things, and bees have had their share of contention as well as their poor unfortunate keepers. However, in those days, of some twenty years aback, numbers of people of every grade of the social circle tried their best to keep bees at any cost, whether they had knowledge or not. In some instances the owners had no intelligence of bees, and of course their bees died away. Those who did retain any English tuition in apiculture succeeded fairly well; but with them troubles and losses of bees continually occurred, and the industry received severe shocks soon after; and since science had brought us sanitary preparations into use it has opposed bees and apicultural objects most woefully. The busy little animals were of course compelled to seek dirty water in holes in the diggings and in the street gutters of towns. So their difficulties were tremendous, for poisonous deposits were ever within their grasp; hence the great losses sustained.

In these later days we are very considerably better off. Now there are various fresh-water reservoirs in far-off up-country districts as well as near to our seaports and inland cities, and where houses are roofed and water-catchment is better looked after for both bees and the bee-keepers. Consequently bee-life is more congenial, and is certain of a long career profitable to the keeper and plentiful stores for the workers and their beautiful queens. And, by-the-by, our improved climatic considerations are of the best assurances, for our seasons are less hurtful to bees; we have less hot winds than formerly, and our winters are less severe in the coldest districts where bees most delight to be. They seem to revel in the enjoyment of labour all the year round from daylight to dark.

This is a vastly superior country for bee pasturage and consists of many thousands of miles square and extending all over the colonies—east, west, north, and south. During the last few years more work may be said to have been accomplished in apiculture, so far as the J. D. K. Z. gin-cases as a type are concerned; whatever it may be I cannot define, but the bees seem to have a great fondness for these kinds of dwellings, and they prosper most remarkably well in them.

In these present days of 1885 a revival in bee operations has begun, and many styles of hives have come into use, such as the Watson, Stewarton, Chapman (colonial), Neighbour, and that favourite hive, the Rev. Mr. Langstroth's bar-frame. This latter is much esteemed here, and will become the ruling passion beehivewards of any other in the field. During this season, or I ought to say this prolongation of the last, the Langstroth hive has been worked at an efficient and very productive rate, as we have reported unknown numbers of tons of honey and wax secured, and are still being obtained, stocks on all sides being uncommonly heavy. A little foul brood is about, but other losses from disease are few and far between. During the past two months the eucalypts and our great forests have been blooming most profusely, and, in conjunction with the present fine autumn, the ti-tree, banksias, and a host of other wild flowers, are causing great labour among the bees, and 'supers' are in the ascendant; so fast are the 'worker' bees plugging-up their cells with incomparable rich nectar. In five years time I really believe the Australian colonies will be prepared to supply Great Britain with nearly all her honey commands, if the grand qualities of the products are properly regarded.

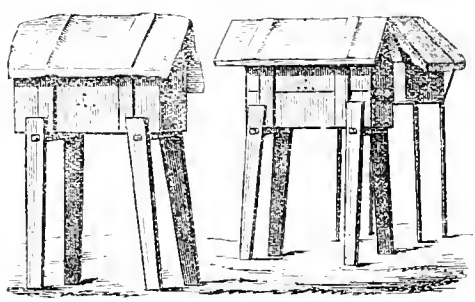
Some of our colonists, more expert than their neighbours, have recently formed a company to sell honey to those who do not keep any bees. I have not got a prospectus, so cannot explain much about it. It is something similar to your Honey Company at 'home.'

I have recently ascertained that an association is being formed for keeping bees on a large scale, as in California, Europe, &c., combined with fruit-growing, poultry and pig-breeding, &c., which is to accompany the bees, and seems to be well explained in a prospectus in manuscript I have been permitted to read. The promoters are nearly all of the most skilful bee-masters in the colony, and one of them is Mr. Oscar Arney, of Hertfordshire, who is, I believe, well known to many bee-experts, and is said to be one of the greatest bee-masters of old England. I notice that English capitalists, and particularly your British bee-keepers, are to be included in the proprietary, in which I am sure they will never repent to be attached for many cogent reasons. In a few months I sincerely hope I shall be able to write and say that a goodly number of the old country's ten thousand bee-keepers have wisely taken up the shares, and supported the association, withal helping themselves to our big bee-keeping country. In other respects the association is to be a 'profit-sharing' one between capital and labour syndicates. This latter fact is becoming popular here in Victoria.

A Victorian Bee-keepers' Association has been organized in Melbourne, and has some sixty-six members on the roll. They went well the first few weeks and then fell off. It has now only a few devotees who meet now and then. I anticipate it will collapse, as the members live widely apart and cannot afford time and cost to reach the meetings. I sincerely hope that it may be the reverse, and that I may have to state soon that a refreshing new start has been vigorously entered upon.—JOSEPH MILLER, *Melbourne, Victoria, April 20th.*

CHINESE BEES.

The accompanying photographs of bee-hives, taken by Captain Maclear, in the Ordnance Stores' Gardens at Hongkong, may interest some of your readers. There



were twenty-three of such hives in the garden in charge of a Chinaman, who freely opened the ends of the boxes and turned over the bees with impunity, the insects being of the most peaceful nature.

It seems that the Chinese are well advanced in bee-keeping, and that queen-bees (called kings) can be bought in Canton for two dollars, with a few workers (soldiers), which they consider enough to start a hive, as they increase very rapidly.

The honey is taken by removing the ends of the box and blowing in a little smoke from a joss-stick, when the combs most handy to reach are taken out. But as they *begin* to take honey very early (May?) it appears they

destroy a good deal of brood also by the man's account. They are careful to move the ends of the box and clear out all the dead cockroaches and wasps, which are frequently found in the hives.

The account of the processes of various kinds being given in 'pidgin English,' the information given was but meagre to one not well versed in that jargon, but I hope that these few facts may be of some interest.—MACLEAR, *Cranleigh.*

LECTURE ON BEE-KEEPING.—A lecture on the natural history of bees, with a sketch of their management in frame-hives, was recently delivered before the Sheffield Young Men's Christian Association, by Mr. W. T. Garnett. Much interest was shown in the combs and bees exhibited, and their wonderful habits.

A YOUNG BEGINNER.—On May 27th, during my absence from home, my first swarm of this season was found on a gooseberry bush by my son of only just ten years of age. With an ordinary net veil and *holely* gloves he at the first attempt successively shook the bees into a skep and then into a bar-frame hive. He was stung a few times, but stuck to his guns. On my return I found the bees all right. Last season my boy had seen me hive a few swarms, but until yesterday had never attempted to do so himself.—BEDFORDSHIRE.

WILD BEES IN OREGON.—The Portland *News* mentions the following incident:—'A short time ago Samuel, Asa, and Joe Holaday, of Scappoose, took a trip over to the Lewiston river, in order to look into the resources of that region. They found it a most beautiful country, and one that offers many inducements to settlers. The part visited lies off in the direction of Mount St. Helena, and is composed of both timber land and fine open tracts which abound in game, large and small. While encamped on the river, they discovered an object that was as novel and interesting as it was beautiful and striking. In their rambles through the pine-woods, they suddenly came upon a fallen tree across the path which, on inspection, they found to be hollow. Through a knot-hole they could see something white, and at once began to investigate. They sawed into the log and were surprised to find that the whole interior of the log was filled solidly with honey. They at once brought from their camp some of their vessels to fill with this sweetest of all nature's productions. Their buckets and pans were soon filled. Then they sawed off another length of the log, and found it still solid with the honey. This they repeated and took from it honey until they had opened up ten feet of pure, lovely honey, which was yielded from a comb that was in many places four inches thick. Of this find they carried away 180 pounds, which they declared was the finest they ever tasted, being far richer than the honey which tame bees produce.'

BEES AND PEACHES.—A correspondent in the *London Garden*, from Wales, remarks as follows:—'I know of no better way of securing a heavy crop of peaches and nectarines, than by putting a colony of bees in the house when the trees are in bloom. This has been my practice for several years past in the case of a house in which the trees come into flower in March, and the result is always satisfactory. When the bees are in the house, we never brush the flowers or shake the trees in the hope of fertilising the flowers; this work is left entirely to the bees, and they do it effectually. I have thinned 900 small nectarines from a tree which covers a piece of trellis four yards square, and several hundred more will have to be taken off before the crop is a safe and ordinary one. This, I think, is proof enough as to the advantage of employing bees, and those who think such work does the bees harm make a great mistake, as they thus get a supply of food before it is plentiful out-of-doors; and I have noted that I have for two years secured my first swarm and earliest-filled sections from the peach-house bees. I may add that I have a good many colonies of bees, and in my opinion they are useful in a garden at this season, and when managed on the moveable-frame system, they are both interesting and profitable.'

BEE-KEEPERS IN GERMANY.—From September 9th to 15th, the annual meeting of the Austro-German Central Bee-keepers' Association, will bring together 400 to 500 members. Mr. Lehzen, of Hanover, enumerates the associations in Germany and the number of members in each one, as follows:—'Central of Gumbinen, 488; Circle of Siegen, 500; Baltic Central (in Pomerania), 950; Central of the Province of Hanover, 1300; Central of the Marches, 900; Central of Schleswig-Holstein, 400; Seven United Associations of two Hesses, &c., 1200; Central of the Great Duchy of Saxe-Weimar and neighbouring country, 380; Central of the Provinces of Saxony, Thuringe, and States of the Grand Duke of Anhalt, 1200; Central of Mecklenburg, 600; Central of Bromberg, 500; Baden, 1700; Cammin, 3500; General of Silesia, 2242; The German Club of Frankfort upon Main, 2242. Total, 16 principal groups, numbering 15,880 members—all readers of progressive periodical publications.'

Echoes from the Hives.

Langrick, Boston.—I fancy the season bids fair to be a good one for bees. My eighty stocks are doing very well; blossom is very abundant and white clover coming out.—ROBERT THORPE.

South Cornwall, June 10th.—Alas! again for 'climatic influences.' These were most unfavourable during the latter part of May, but June 1st broke out 'glorious,' and for four days we had rare weather. The bees of course made the most of it, and it is really astonishing what they gathered even during the four days of mist which succeeded. Now it is fine again, and all are busily at work. The first swarm I heard of came out on Monday, May 25th—a very enterprising queen, considering the weather.—C. R. S.

North Leicestershire, June 11th.—A real good fortnight of fine weather and an extraordinary honey glut have enabled the bees to fill supers pretty fast. Swarming set in furiously during the first week in June, but received a check from the wet on the 6th and 8th inst.—E. B.

NOTICES TO CORRESPONDENTS & INQUIRERS.

H. W. DAVIS.—*Bees flying back to their hives.*—1. We cannot make ourselves responsible for all the statements of our correspondents. It is a well-ascertained fact that chilled bees, although from different hives, when collected and incarcerated in the same receptacle, in a warm room, on flying back to their hives, after revivication, are joyfully received. We have proved the fact hundreds of times. Even after two days' imprisonment they have been well received. 2. *Pollen Grains, Uniting, &c.*—The small grains of pollen which you noticed were rubbed off the legs of the bees when passing through the zinc excluder. After twenty-one days, drive the bees from the skep, unite them to those in the frame-hive below, and replace the skep by a rack of sections. It is better not to divide into two colonies, if that were possible. Queen-cells will almost certainly have been destroyed by the bees, therefore you will find no young queens. There is no fear of a swarm issuing. If you delay the removal of the skep when all the brood is hatched out, the bees will use the skep as a super, and store it with honey, always supposing the

old queen remains below. Both young queens and old ones will occasionally pass through excluder zinc.

Col.—1. *Ligurians.*—After more than twenty years' experience with Italian bees, we have no hesitation in pronouncing them the least irritable of all races, except, perhaps, the Caucasian, which are lazy and poor honey-gatherers. The irritability or quietness of bees when under manipulation depends very much upon the operator, and Italians, like all other races, decidedly exhibit temper when roughly handled, and when once thoroughly aroused they are difficult to subdue. You will not regret giving them a trial. Only be careful to procure the *pure race*. We have reason to believe that large numbers of the so-called Italian queens, bred and sold in this country as of pure race, are cross-mated with drones of other races, and, consequently, their progeny is hybrid, the most vicious of all. Hence we always advise the use of imported queens from a trustworthy source. 2. *Doubling Hives* for doubling should correspond exactly in size, style of frame, and in fact in every particular. The frames should be standard size. 3. *Size of Hives for Doubling.*—Your dimensions are extraordinary. We consider 18 in. square a good size for doubling, and the frames should range from back to front, ¼ in. being allowed between the bottom bars of frames and floor-board. 4. *Trifolium.*—We believe that black bees work to some extent on *Trifolium incarnatum*, which is an excellent honey-yielding plant, but not to the same extent as do the Eastern races. Near to our apiary we have several fields of this clover, which are covered all day long with Italians, Syrians, and hybrids, and the honey stored is both good in quality and large in quantity. 5. *Leaving Home.*—Extract the honey from, say, the four outside frames in each hive, before leaving home. Replace them and put on supers of sections, and we trust on your return that you may find all hives well filled up, both above and below, with the delicious nectar which the heather yields.

Rev. W. B. J.—*Working for Extracted Honey.*—Yes, you may put frames filled with foundation behind the queen excluder, but you will find it better to put them into the breeding part and place some tough old combs behind for extracting purposes.

Jno. Turner.—The powder in packet is dried pollen.

M.B.—1. *Returning Swarms.*—Yes, you can return them to the stocks from which they issued. If you previously find the queen and pick her out they will not issue again unless about nine days after, when they may re-issue headed by a young queen: this you can avoid by destroying all queen-cells but one. 2. *Bees not entering Sections.*—There may be many reasons for it. For instance, the section may be draughty and cold; there may not be more honey coming in than they can dispose of below. Try removing the outside frames and closing up the division boards, keeping the super warm.

M., *Rathelmond.*—*Transferring.*—1. Supers may be placed on transferred colonies as soon as the additional foundation given is drawn out, or when the hive is combed throughout. 2. Transferred colonies do not usually swarm so early as others, but much depends upon circumstances. 3. The enamel-cloth is placed upon the frames, glazed side downwards, and the woollen quilt, or felt, laid upon it. We prefer the enamel-cloth to calico, or any other material.

C. R.—*Onions, Quilts, &c.*—1. Onions, grown for seed, near the hive, unless in large quantities, will have no injurious effect upon the honey. The 'wild garlic,' which grows largely in some districts, is most to be dreaded. 2. The feed-hole in the quilt may be from 2 to 4 in. in diameter, according to the size of the feeder. 3. The quilt must be entirely removed before the super is put on. 4. If the sections do not fit close at the top, but allow spaces for bees to pass through, they must be covered with enamel-cloth, tick, or calico. Swathing the whole super with woollen material to retain the heat is advisable. 5. At this time of the year the loss of a queen can be ascertained by inspection only. 6. The queen sometimes ascends into the super and spoils it, by depositing eggs. This rarely occurs during a plentiful honey-flow, but chiefly in cool, moist seasons.

Tyro.—1. *West of Scotland Bee-keepers.*—Mr. R. J. Bennett, 50 Gordon Street, Glasgow, Secretary of the Caledonian Apiarian Association, will be able to give you the information you require. 2. *Removing Enamel Cloths.*—Enamel-cloth and *all* quilts must be entirely removed before supers, section-crates, &c., are put on the hive. If a colony is sufficiently populous to work in sections there need be no fear of chilling the brood. The bees will take care of that during the warm weather of June and July. Putting supers on weak colonies, and too early in the season, is the common error.

D. H. D.—The name and address of the Secretary of the Small Allotments Company are, Samuel Insull, 37 Palace Chambers, 9 Bridge Street, Westminster.

C. H. R.—*Bees Suffocated.*—Your bees were suffocated, by the apron tied over the skep being of too close texture to admit of sufficient ventilation. Bees, before swarming, fill their honey-sacs, which contain sufficient food for two or three days' supply. From the excitement of being confined, and from want of ventilation, and the excessive heat resulting therefrom, the honey was disgorged from the sacs, and the poor bees became a clammy, sticky mass, and so perished in their own sweets. If you had used cheese-cloth, of very open texture—only just close enough to prevent the escape of the bees—and had left the swarm in an open shed, where the air could circulate freely, the result would have been different. In a railway van there is always a sufficient circulation of air to prevent suffocation when bees are rightly packed, but it is always the safest plan to despatch them by evening mail trains. We have received bees thus treated, in excellent condition, after a railway journey of 300 miles. Although it is not really necessary that there should be ventilation through the crown of the skep, yet many provide it, and it is, perhaps, as well to be on the safe side. The skeps should travel upside down, and the bees will be found to cling to the sides—not in a cluster as when swarming.

R. E. C.—In all professions there are differences of opinion. In this respect apiculture is not singular. The foremost apiarists, whether in America, Germany, or England, differ on certain points both of theory and practice. Nevertheless, on all material points there is a general consensus of opinion, and our columns are open for the discussion and statement of different views, especially when backed up by experience and practice. Our space, already overcrowded, forbids the putting into practice of your suggestion to print 'queries' as well as 'answers.' Until we can see our way to a weekly issue the thing is simply impossible. 1. *Drone Foundation.*—Drone foundation is very rarely used. We have never used any but worker, and we find that it answers well in every respect. 2. We suspect that you have used a thick, inferior kind of foundation for your supers. The foundation we prefer for sections is that of American manufacture—thin as a wafer—and with full sheets of this we have never found a 'septum' or 'midrib,' such as you describe, in any single section. 3. *Tiering up Section Racks.*—Correspondents express their *own* opinions. We are careful to recommend such procedure only as we have proved by actual practice.

The tiering up of section racks is intended to keep bees at work in supers, and to prevent swarming. If an empty super is placed *over* one nearly completed, instead of *under*, very often the bees refuse to take possession, and send out a swarm. When placed under they at once take possession. 4. *Raynor Feeder.*—The 'Raynor Feeder' is now made in two sizes, the smaller of which, any roof, which takes a super at all, will admit. It would be an easy matter to enlarge the roofs of your hives, and the expense would be trifling. We all gain knowledge by experience. 5. *Sugar and Granulation.*—We have used the Duncan pearl sugar largely, and have found no granulation in the syrup. Do you make your syrup according to Cowan's recipe? The vinegar is supposed to prevent granulation.

A. F.—*Mustard Honey.*—It would be quite impossible for us to give an opinion as to the quality of your honey without seeing it. Mustard honey is of poor quality, and speedily granulates, even in sections of a few days old. Bees are so fond of mustard that they will desert most other flowers for it. 2. *Honey yielding plants.*—Yes, bees obtain honey more or less from all the flowers and plants you mention. When wheat is in bloom they may be observed in numbers working diligently on the ears. Indeed, there are very few flowers upon which bees do not work, but they have preferences when a choice is afforded. 3. *Brood turned out.*—The brood was turned out for lack of food. Instead of feeding slowly you should have fed freely and copiously. About 2000 young bees are daily added to the population of a strong colony at this time of year: the demand, therefore, upon the stores is very heavy. 4. *Returning Swarms.*—It is impossible to account for the vagaries you mention unless we know the circumstances more fully. We do not recommend returning swarms and cutting out queen-cells, much less destroying young queens. Read our advice on swarming in our issue of May 15th, under 'Useful Hints.' If you follow it you will very rarely have second swarms, or *casts*.

W. B. Hunt.—*After-swarms and their Cells.*—With the views of Mr. Langstroth respecting *after* swarms and the kind of cells they build, expressed in a note on page 184 of this work, we have long been acquainted and fully agree. Our remark, that drone-comb was built by these swarms referred to the *time previous* to the fecundation of the virgin queens at their head. This we have proved repeatedly. It should, however, be remembered that fecundation usually takes place within three or four days—often on the second day—after the issuing of these swarms, and, therefore, there is but little time devoted to the building of drone-comb, and the quantity actually built, owing to the paucity of bees, is very small. But every one knows that *after-swarms* begin to build their combs at the *side* of the hive, and not in the *centre*, as do first swarms; and if any one will take the trouble to examine the outside comb of such a swarm he will find the cells to be drone-cells. On one occasion we had, in our own apiary, a large first swarm which united itself to a fair sized second swarm while hanging on the branch of a tree. Before we could separate the two the old queen was killed by the young one, so we hived the whole in a twelve-frame hive—having larger frames than the standard; and the bees went to work merrily at comb-building, being liberally fed, on account of the weather proving unpropitious. From the latter cause the young queen was unable to mate, and about three weeks' afterwards was lost, on a final attempt. Then followed intense commotion, the bees rushing forth from the hive, and attempting to enter other hives. We, suspecting the cause, opened the hive to find only a few stragglers rushing wildly over the combs, ten in number, quite finished, and the other two were begun, *—combs, truly, but the whole consisting of drone-cells.* We immediately removed the drone-combs, supplied some others containing worker-cells in their stead, caged upon one of them a fertile queen, brushed off from the adjoining hives the vagrant disconsolate bees, which, on entering their old hive set up the usual joyful hum, when the queen was at once liberated and joyfully received, and all was harmony and peace. This was one instance alone, but we can bring forth many others which all prove the same point. Newly hived swarms, with a fecundated laying queen, *always* begin by building *worker* comb; the converse holds as surely as the proposition.

[In our last reply to W. B. Hunt 'foundation' was printed for 'fecundation.']

W. H. J.—*Hearing of Bees.*—Your speculation that, even if, as generally supposed, worker bees are without power of hearing, queens may be possessed of the sense, seems worthy of investigation. As to drones and queens finding each other by the aid of sound, it is more likely that sight is the means. The large number of drones in most hives, and most of them being out on fine days when queens are likely to be upon the wing, renders it probable that, at the altitude to which they soar, the air is pretty well peopled with drones on the look-out for queens.

R. Bailey.—*Legal Claim to Bees.*—You have no legal claim to the bees, nor can you compel the man to buy the hive into which you got them. You should have made some bargain first. As it is you have the benefit of their labours in working out your foundation and storing some honey in your hive. If you had stood the hive on the stand of one of your stocks, you would also have saved the eggs and brood.

E. J. Gibbins.—*Doubling.*—It is not necessary to put excluder zinc over the lower frame if you give the queen plenty to do below. Ten frames are enough for a queen to keep supplied with eggs. The plan you propose is a very good one if you can ensure working up the three stocks each to fifteen frames of brood by the time you want to double.

M. Hargreaves.—*Bees in Skep Dwindling.*—From your description your bees have probably an old queen, and her production of eggs does not keep pace with the loss of life by age. We should advise you to get some one of experience to examine them, as the particulars you give are not sufficient to enable us to pronounce a decided opinion.

F. West.—*Foul Brood.*—Having procured Mr. Cheshire's pamphlet on the disease, you cannot do better than follow his advice.

D. H. D.—1. *Making Swarm in a Skep from a Bar-frame Hive.*—Remove the bar-frame hive to another stand, and place the skep on the stand from which you removed it, and let it be on a large board. Open the bar-frame hive, find the frame on which the queen is, carry it to the old stand, and with a jerk shake the bees and queen on to the board; serve one or two other frames the same, and replace them in the hive, close it up, reduce the entrance, and keep warm. The bees you shake off, and those flying, will, together, make the swarm. 2. *Feather Alum.*—See p. 177. 3. *Sugar for Dry Feeding.*—A soft sugar, such as Porto Rico, is generally used. We have found the plan answer very well, and it certainly is a saving of time and trouble.

E. Crisp.—*Extracting from Combination Hive.*—Yes; you must use excluder-zinc to divide the breeding department from the frame devoted to extracting supering. In the case of sections it is not necessary, the space between the sections being of a size to exclude the queen. When a large super is used, excluder should be used raised a quarter inch from the frames, so that the bees can circulate under it.

E. A. Lord.—The grubs are very decomposed, but do not give any sign of foul-brood in the microscope. To say anything positively it is necessary to see the larvæ in a fresher state. I do not suppose any disease exists.—F. C.

Busy Bee.—The sample of American cloth forwarded is suitable for covering the frames.

A Bee-keeper.—The queen leaves the hive for fertilisation from three to five days after leaving the queen-cell. She never afterwards leaves the hive, except when accompanying a first swarm. If the queen is hatched in the fall of the year, and through the absence of drones is not fecundated, she will be a drone-layer in the spring.

O. H. M.—*Unwelcome Bees in a Building.*—You will probably find that the bees are confined to the space between two of the joists, and that not much cutting away would be necessary to dislodge them. If, however, as you say, you cannot interfere with the building and you must get rid of the bees, you can destroy them by injecting the fumes of burning sulphur into the space in which they are. But let us plead with you to spare them if possible. Having got the bees out, either alive or dead, you must carefully stop up every crack into which bees can find their way, or you will almost certainly have other swarms in this and future seasons take possession of the same place.

J. Field.—*Fed Swarms and Pure Honey.*—Your swarms, which only took down half-a-pound of syrup in a week, used it all for their own sustenance, and any honey extracted from that hive would be pure. As to other, which took a limited supply daily, the syrup would be all either consumed or stored around the brood-nest; and as honey is now coming in freely you may extract from the outside combs and feel quite at ease as to the purity of the honey. As to fed stocks, you may extract what was stored while feeding and keep it for food, and so ensure future extractions yielding pure honey.

W. V. S.—*Wired Frames.*—We presume you mean combs built on wired foundation. These are suitable for use in the extractor as being less liable to break out. The wire does not effect the honey.

If Secretaries of Honey Shows happening during the fifteen days of our Issue would take the trouble to furnish us with the dates thereof, we should be pleased to give insertion to them. Such communications should reach us not later than the 10th and 25th of the month.

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Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

[No. 173. VOL. XIII.] JULY 1, 1885. [PUBLISHED FORTNIGHTLY.]

Editorial, Notices, &c.

QUEENS LATE IN COMMENCING TO LAY.

[In addressing A. E., who forwards a query, I am dealing with a question of general interest, asking whether he had been too precipitate in removing the queen he enclosed as she had not laid an egg at twenty days old, and so prefer to put my reply somewhat into article form.]

The fact of a queen not laying at twenty days old is not in itself a sufficient reason for displacing her. The normal time in warm weather for mating is the seventh day, ovipositing commencing about forty-eight hours afterwards. Although sometimes queens do mate as early as the fifth day after maturing in the cell, the statement made by Dzierzon and others that they occasionally mate on the second or third after hatching, is a half-truth only, as queens are not infrequently kept by the bees of their hive within the cell two or three days after they are ready to leave it, and are then nourished by special food being placed upon the feeding grooves of their tongues, which are protruded through openings made in the capping. These queens *may* mate two or three days after gaining their liberty, but that will be five days at least after their hatching condition has been reached, which time may be regarded as the minimum. On the other hand, the period of conjugation in adverse weather is often greatly extended, and there is strong reason for supposing that queens have been delayed in meeting the drone until thirty days old at least, and yet have turned out good mothers.

There are wider variations between queens than common opinion concedes. The very great number I have dissected during the last two years has brought to light most curious and suggestive facts, showing that queens run through a long scale of variation from a point not very far removed from a fertile worker to a mother of the completely differentiated and highest type, a matter to which I shall hereafter draw attention.

The queen in question, from reasons which lie altogether outside my knowledge, for I have not learnt any details of the stock in which she was raised, had either received a check or had been insufficiently nurtured. Possibly, or rather probably, she had been raised by old bees which I find contain the anatomical evidence of being unable to act as first-rate nurses, and *à fortiori* incapable of turning out high quality mothers. It is manifest that *normally* queens are produced when a hive is teeming with young bees, and from such only can queens of first-class fecundity and endurance be obtained. The specimen sent me was anatomically susceptible of mating, but was yet *unfertilised*. Her ovaries were small and surrounding them were still considerable quantities of fatty substances (*corps graisseux*) which should be used up during the pupa condition forming tissue and giving the needed energy for the vital changes then in progress. The healthy queen grub at the time of sealing weighs very nearly double as much as she does when hatching, because of the disappearance, through oxidation, of these fatty masses aforesaid. That these had not properly been utilised in the specimen sent would indicate depressed vitality, possibly due to too low a temperature during the chrysalis or pupa stage; and this would in turn indicate a small number of bees which, in the chilly weather obtaining at the time this queen was sealed in, would be inadequate to the work of maintaining the needful heat for perfectly satisfactory chrysalis development.

Experiments long since made, in which queen-cells-sealed were removed and kept at a lower temperature than that of the hive, enabled me not only to delay the period of hatching by three days and a half, but to produce queens with aborted wings and other defects. Errors in temperature and excessive dryness in the air causing the mischief. In a weak nucleus of perhaps half a pint of bees in chilly summer weather queens have hatched out with me seventeen days and a half from egg-laying, while the full healthy time is sixteen days.

All this points in one direction, and teaches a lesson which I must repeat that it is the highest economy and the soundest philosophy to devote the very best stock to queen-raising. The stock which has the best points, the finest honey-gathering qualities, should yield the queens for the coming year's work; and let us not think it good policy to employ weakling lots that can do nothing else as our queen-raisers. Langstroth's advice to use foul-broody stocks for this purpose is about the very worst that could by possibility be given. The knowledge he had of foul brood, so far as its nature and scope went, was almost *nil*; but even considering this his

suggestion seems to me to lack that insight which he shows in so many other directions.

To return to the queen under discussion. The opening to the spermatheca was very wide, as I have previously noted in virgin queens; and probably by a little more waiting she might have secured the honours of maternity, but never could she have become the type of mother which must sweep a stock quickly on to the heyday of prosperity. Of such a sort, however, may her successor prove to be, but she will not if she be reared by the bees which have produced and mourned the mother we have cut up and debated.—FRANK R. CHESHIRE, *Avenue House, Acton, W.*

STINGS.

Bee-keeping would be a more popular industry than it is were it not for the extremely objectionable way that bees have of stinging.

Marvellous as is the mechanism by which this is effected, it requires a truly philosophical mind to appreciate it when a bee has driven in its sting on some sensitive part of our person; and though theoretically we may admire, we would rather avoid, the practical effect.

Three traditional courses are open to us—to avoid bees altogether, to protect ourselves by veils, gloves, &c., or to have some remedy at hand which will prevent any ill effects. With some people a sting is followed by such serious results that it would be the height of imprudence on their part to attempt to keep bees; but as we are writing for bee-keepers we shall not discuss the first of these courses, as with certain precautions the chance of being stung can be reduced to a minimum.

Not that a veteran bee-keeper will not get stung occasionally, for bees are 'kittle cattle' to deal with, and we have often wondered why a bee should go out of its way to attack us without rhyme or reason; but the more experience we have in handling bees, and the more they are handled, the less liability there is of being stung, and, as a rule, we have found that carelessness and neglect of proper precautions have earned their due deserts.

There are two golden rules to be observed in handling bees,—never to irritate the bees by quick motions, but to be slow and deliberate, and to see that the bees are gorged with honey or syrup. If we are careless enough to let a frame slip through our fingers or pass our hands too rapidly over an open hive, the bees get irritated and at once sting the hands or the face if unprotected by a veil, whereas if we are slow in our movements the bees will very seldom attack us.

Bees are very like men in that they are good-tempered when they have had a good dinner, and so it is always advisable to see that there is enough uncapped cells of honey in the hive, or we must supplement them by pouring some syrup over the bees and let them suck this up before beginning to handle them. A little smoke is often advisable, though with some bees, like the Syrian variety, it makes them more irritable and more apt to sting. A very good plan is to puff in a little smoke at the entrance, then drum the hive for a few seconds and puff in a little more smoke as we take off the carpet, and after waiting a minute or two proceed to take out the frames.

Until the beginner has got confidence he had better protect himself by wearing a veil and gloves, and at some time of the year, especially when the bees are gathering no honey, a veteran even is compelled to use a veil.

Those of us also, who have got other work to attend to, had better be on the safe side, and protect the face, as one or more eyes half closed up by stings is apt to provoke ill-natured remarks, reflecting on our pacific disposition or sobriety.

The sooner, however, we can dispense with gloves the better, as it is really impossible to do any delicate manipulation, such as catching a queen, if our hands are covered.

Doctors proverbially disagree, but there is one point on which all are agreed, and that is, that many specifics for any one disease imply that there is not one of any real good.

So with bee-stings. Scores of remedies have been extolled, from cold water to carbolic acid, from plantain leaves to raw onions, as being the specific.

We have the greatest faith in carbolic acid applied at once. It is a very cheap remedy, as for a few pence we can supply ourselves with enough to treat some hundreds of stings.

All that is wanted is some strong carbolic acid, like that used for disinfecting drains, and the method of using it is as follows:—

Immediately after we have been stung we extract the sting, touch the place with a stick or glass rod which has been dipped into carbolic acid, and then apply a drop of water; and the union of the two causes a paralysis of the nerves which control the lymphatics, and so prevents the poison from being taken up into the system. Only the smallest possible quantity must be used, as the acid, being a caustic when mixed with water, leaves a scar, which however will disappear in a few days, unless an excessive quantity is used. The old idea that we can neutralise the poison, which is acid, by using an alkaline solution of soda, potash, and ammonia, is altogether erroneous. If it were possible to inject the solution, so that it should follow the same course as the acid poison, and immediately combine with it, we might manage to neutralise the poison; but the external application of the solution is useless, except so far as its cooling properties are concerned, just as any evaporating lotion tends to reduce inflammation, and is useful to counteract the effects of a sting.

USEFUL HINTS.

We are now at the height of the honey season, and where white clover abounds, sections should be rapidly filled. Up to the 21st of June few racks of sections had been completed, in consequence of the changeable weather experienced—alternately hot and cold—so cold, that during the nights the bees, perforce, were compelled to desert the sections,

and then would follow a splendidly bright day, and the sections were again deserted for work in the fields, and filling up cells below, which had been emptied during the ungenial weather.

During the present fine break, unfortunately, a great deal of bee forage is falling before the scythe or 'mower,' and in districts having no heather, a fortnight will see the principal part of the honey harvest over. The old saying,

> 'When meadows are mown,
> Bees store none,'

is not far from the truth.

At present with beans, white clover, tares, or vetches, and wheat in bloom, the income, with fine warm weather, ought still to be large; and soon we shall have the limes also in bloom, with which comes the close.

Giving and removing Sections.—Strong *swarms* of three or four weeks' standing, which have not yet been supered, may have a case of sections at once, with a chance of getting them filled, weather favouring. We have known the white clover in grazing districts yield abundantly during the hottest weather in July and August; and it is possible that our chief harvest may yet be collected. Sections inserted in the body of the hive have been most successful at present; but the quality generally is not so good as those worked above. Where second swarms have not issued, or have been returned, supers ought to be approaching completion. Sealed sections should be removed at once and their place supplied by partly finished ones. Sections when removed should be stored in a dry, warm room and packed so that the air can freely circulate around them; but they must be kept free from dust. A dry, dark closet is a good place for storage.

Second Swarms, having been kept, should be carefully examined to ascertain if the queens have become fertile, in which case they will have increased in size, the abdomen will have become longer and more bulky, and they will receive more attention from the bees; but the most trustworthy evidence is the disposition of eggs in a regular, orderly form. Any colonies found queenless should be re-queened without delay.

Carbolic Acid as a bee-quieter appears to be coming into more general use. As many inquiries respecting the strength of the solution used have been made since our last issue, we give that which we have used for many years:—To a quart of water add two ounces (four tablespoonfuls or a wineglassful) of the strongest carbolic acid. The solution should be well shaken before applying it, as the acid does not mix readily with the water, but sinks to the bottom of the bottle. A wide-mouthed pickle-bottle, with several strong goose-quills, forms our apparatus, and of these we have half-a-dozen standing about our hives in readiness for use. No case of foul-brood has ever visited our apiary during an experience of nearly half-a-century, and we have used the above solution for more than twenty years.

Extracting should now be carried on with vigour. While honey comes in, the more the extractor is used the more honey the bees will store. Do not extract from combs containing brood. Our advice is intended for the inexperienced, and not for the expert; but we think the latter would do well to forbear, as we cannot believe that the motion of the machine, however gentle, will not injuriously affect the unsealed, if not the sealed, larvæ.

Shade.—In very hot weather shade all swarms to prevent the melting of the newly-built, tender combs.

Maiden Swarms.—May or early June swarms, in a good season, will often themselves throw swarms during this month. These swarms are usually termed 'maiden.' Where it is intended to retain them as future colonies, they should be treated as second swarms; except that having old queens at their head, it will often be of advantage to replace these by young queens. To such swarms full sheets of foundation should be supplied, and food if necessary. It is also excellent practice to give them, as well as second swarms, a frame of brood and honey from any strong colony which can well spare it. Over the enamel cloth, covering swarms, a woollen quilt and crown-board, weighted, should be placed to keep all tight and warm. In extremely hot weather wedging up the hive $\frac{1}{4}$ in. below will give ample ventilation.

BEE-KEEPING AT THE COLLEGE OF AGRICULTURE, DOWNTON, NEAR SALISBURY.

The peculiar feature of this College, in which it differs from every similar institution in this country, is its possession of a mixed farm (of 550 acres), which is utilised to the fullest extent, as a means of imparting a knowledge of practical agriculture—offering to each student all the advantages of a private pupil under a farmer combined with the highest collegiate instruction in the sciences on which the art of agriculture is based. The College is pleasantly situated in the midst of gardens and orchards, and the farm extends from the river Avon on the east (behind which lies the New Forest) to the Downs on the west. The students, at present, are nearly fifty in number, under the charge of Professor Wrightson, the President, assisted by an efficient staff. The President has lately started an apiary, and on June 12th he invited the Rev. W. E. Burkitt, hon. secretary and expert of the Wilts B.K.A., to spend a day at the College and give some instructions on the management of the apiary. Notice had been given to the students that at eleven o'clock Mr. Burkitt would give a lecture in the garden with practical illustrations of the management of both bar-frame hives and skeps. All the hives, consisting of two bar-frame hives and eleven skeps, were then examined, and useful hints given. An artificial swarm was made, and the process of driving explained; this lasted till luncheon, after which another batch of students attended to witness similar operations, two of the professors trying their hands successfully in driving, and a natural swarm was hived for a neighbouring cottager. In

this way a very pleasant afternoon was spent. Very great interest appeared to be taken in the proceedings; indeed, a most satisfactory proof of this was given by the professors and students on the spur of the moment collecting a sum of 1*l.* 5*s.* 6*d.* among themselves and handing it to the hon. sec. as a contribution from the College to the hive fund at the County Show.

Mr. Burkitt was cordially invited to repeat his visit, and it seems not unlikely that before long bee-keeping may be made one of the regular branches of instruction at this most useful institution.

PEEL MEMORIAL FUND.

We are desired to state that subscriptions to this fund will be received by the following officials of the British Bee-keepers' Association:—Mr. Thos. W. Cowan, Chairman of the Committee, Comptons Lea, Horsham; Mr. W. O'B. Glennie, Treasurer, Greenhithe, Kent; Mr. J. Huckle, Secretary, Kings Langley, Herts, and by the Secretaries of County Affiliated Associations. The following additional subscriptions have been received:—

	£	s.	d.
D. Stewart	2	2	0
J. Garratt	1	1	0
G. D. Haviland	0	10	0
J. Walton	0	5	0

County Secretaries would much oblige by giving earnest attention to the above. *Bis dat qui cito dat.*

In last issue of the *Journal* the word 'triennially' should have been 'biennially.' See motion relating to this fund.

OXFORDSHIRE BEE-KEEPERS' ASSOCIATION.

The schedule of the annual exhibition of honey, wax, hives, and appliances, connected with bee-culture, to be held in the private garden of the Warden of Wadham College on Thursday, July 30th, has been issued, and may be obtained of the secretary, the Rev. F. C. Dillon, Enstone, Oxon. The prize list is a full one and offers great facilities to the cottagers, who will have every opportunity of appearing at their best and getting just rewards. The exhibition being held in conjunction with the summer show of the Royal Oxfordshire Horticultural Society will undoubtedly add to the attraction, and visitors should not fail to pay it a visit.

ABBOTTS' SECTION HOLDERS.

For some time past there have been inquiries for a basket for containing sections of honey. A very neat and useful section-holder has been submitted to us by Messrs. Abbott. It appears to be an entirely new idea, and is introduced very opportunely. These holders are made of the finest bass-wood. They are intended for folding round $4\frac{1}{4} \times 4\frac{1}{4}$ sections. Packing these sections for shows and market will now be a matter of a few minutes. We understand that Messrs. Abbott invented these last January, but have had great difficulty in inducing the Americans to undertake their manufacture. (See Advertisement.)

ASSOCIATIONS.

WILTS BEE-KEEPERS' ASSOCIATION.

The expert of the Association, Rev. W. E. Burkitt, concluded his visitation of the county a fortnight ago, having made seven tours, lasting from three to five days each. In all parts of the county a decided improvement is visible, even among cottagers, who have not yet quite abandoned the sulphur-pit. The result of the whole tour has been—128 bee-keepers visited, owning 789 stocks, of which 426 are in bar-frame hives. And thanks to the kind help in transit, and the hospitality offered, the travelling expenses have only just exhausted the 5*l.* prize won in the ballot in February last, while thirty-nine additional members have joined the Association, many of whom were either cottagers, or of the class just above them. Though carefully looked for, disease was only discovered in one apiary—the last visited. The following is a list of places visited by the expert between March 19 and June 12:—Pewsey, Manningford, Chitenbury, Enford, Figheldean, Brigmaston, Appleshaw, Collinghourne, Everleigh, Devizes, Poulshot, Rowde, Bishops Cannings, Beckhampton, Marlborough, Trowbridge, Melksham, Westbury, Warminster, Codford, Stockton, Salisbury, Redlynch, Downton, Whiteparish, Alderbury, Fisbury, Wardour, Broad Hinton, Wootton Bassett, Cricklade, Malmesbury, Somerford, Corsham, and others in the neighbourhood. The various members of the committee and district advisers made all arrangements for the expert's visits beforehand.

The first show of the season was held at Trowbridge on June 2nd and 3rd, in connexion with the Wiltshire (late Marlborough and Pewsey Vale) Agricultural Association.

No prizes were given, these being reserved for the County Show, to be held at Salisbury on August 20th; but useful collections of bee-furniture were exhibited by Messrs. E. M. Hart & Co., and the hon. sec. Some first-rate bar-frame hives were exhibited by R. Webb, of Yambrook, near Trowbridge (at most moderate prices, which were all sold). J. E. Willshere, of Semington, Trowbridge, showed several, for which he had taken many prizes. F. Hersett, of Rowde, Devizes, had also some good useful hives. Mr. Woodbridge, of Hungerford, had several well-made 'Buttismere skep crates,' which are much in demand. Mr. E. Chapman, Frome, showed a great curiosity in the shape of a natural hive filled with comb—to wit, a large hollow limb of an apple-tree some 3 ft. long, glazed at the ends, from which, however, the bees had departed. Observatory hives were exhibited by Messrs. Herbert Clark, C. Webb, and the hon. sec.

Lectures and demonstrations were given each day in the bee-tent at frequent intervals; the hon. sec. receiving much kind help from various members of the Committee, and also from Mr. E. Chapman, of Frome, and F. Bartley, of Rowde. Notwithstanding perfect weather and the excellent site which had been secured for the tent by the treasurer, the takings fell short of the expenses. The sales, however, were larger than usual.

NOTTS BEE-KEEPERS' ASSOCIATION.

A meeting under the auspices of the Notts B. K. A., was held in the National Schoolroom, Grove Street, Retford, on Saturday, June 6th, when a lecture was delivered by Mr. F. H. K. Fisher, of Farnsfield, on 'Bee-keeping.'

The Mayor (Mr. Hurtsman) occupied the chair, and amongst those present were—Rev. W. Homfray, Mr. F. Pegler, and Mr. Humphrey Parry. The attendance was only small. The meeting having been opened by the Chairman, Mr. Fisher delivered an interesting and in-

structive lecture on the best methods of cultivating bees, introducing various apparatus, and explaining their uses. Votes of thanks to the chairman and lecturer brought the meeting to a close.

GLOUCESTERSHIRE BEE-KEEPERS' ASSOCIATION.

Mr. Joseph Cook, acting local secretary of the Fairford district, begs to inform the members of the Gloucestershire B. K. A. in that district that he will be pleased to give any advice, either by letter or personal application, as far as his abilities will allow, at his own house; but as he is unable to walk any distance he cannot engage to visit any one unless his travelling expenses are paid, or a conveyance sent for him.

Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

FOUL BROOD:—FUMIGATING WITH SALICYLIC ACID.

[Will Mr. Cowan be good enough to state in the next *B. B. Journal* how to fumigate with salicylic acid? Is the acid set on fire like sulphur?—BEESWING.]

For fumigating bees to cure foul brood, a fumigator is required, as it will not burn like sulphur. The form of fumigator used is fully described on page 130 of the sixth edition of *British Bee-keeper's Guide Book*. It consists of a cylinder to which is hinged a cover, having a nozzle with an opening 5 ins. by 1¼ ins., so that it can be easily inserted between the floor-board. Inside the cylinder is a spirit-lamp, and above it a metal dish into which the salicylic acid is placed. In the evening or morning when all the bees are at home, the hive is raised at the back off the floor-board by means of blocks of wood, and wedges are inserted at the side in such a way that there is only space for the nozzle of the fumigator to enter. About fifteen grains of salicylic acid are placed in the dish, and the flame of the spirit-lamp so regulated that the acid is gently evaporated. For much flame will cause it to boil over and waste, and too little would not melt it, so that the right amount must be found out by trial.

The nozzle of the fumigator must be inserted in the opening and the corners of quilt turned up, so as to allow the vapour of the salicylic acid to circulate freely. The entrance in front need not be closed. Parts of hive, alighting-board &c., not reached by the fume should be syringed with salicylic-acid solution, given on page 151 of *Guide Book*. Each hive should be fumigated four to six times, at intervals of six days: this is generally found suffieient; but if the disease reappears continue the fumigations. The bees are in no way inconvenienced by these fumigations. At the same time give the bees every other evening a quarter of a pint of syrup containing salicylic acid.

The above process is simple and inexpensive, and I have seen large apiaries cured by its means. The greatest precaution must he taken that everything in use should be disinfected. For further details, see *Guide Book*, pages 138 to 140.—T. W. COWAN.

ECCENTRIC BEES.

There is a dance of devilry going on in my apiary. Last year I purchased, at a high price, from a well-known dealer a swarm of Ligurian bees. They arrived on June 11th, too late in this country to do more than establish themselves. By the end of this season they will have cost me their weight in gold. I have my doubts as to their being Ligurians, owing to their being more beautifully marked than any I have seen.

They started this spring most satisfactorily, as far as breeding was concerned. I noticed they required more feeding than the other bees.

On May 30th I put on a super.

On June 3rd they swarmed and were put back.

On June 4th they swarmed, joined a swarm from No. 2, and were successfully hived, filling two skeps. The old man who was watching them left at 5.15. At 5.45 I went out to return them to their own hive. In the interval they had disappeared.

June 5th. Found them in a hedge half a mile away. They had spent the night in a hedge where they were seen at 5.30 this morning. They then moved to another hedge, where I found them. Brought them back to their own hive and put on second super. There was not a trace of comb on either of the hedges.

June 6th. Put on third super.

June 10th. Swarmed. Settled on skep containing swarm from No. 2. Hived them separately. Put back in the evening.

June 11th. Came out for the devil's own dance. Joined swarms from Nos. 2 and 3, careered wildly round and round the old man, and finally went back to their own hive with the larger portions of 2 and 3. The few remaining bees of 2 and 3 went back to their own hives. In the evening the hive and three crates of eighteen 1½-lb. sections in each were crammed full of bees.

June 12th. Swarmed. Put back. Put on fourth super.

June 13th. Came out three times and went back again.

June 14th. Swarmed. The swarm was so large that it would not go into one extra-sized skep, and as soon as the last portion was hived in a second skep a swarm came from No. 8 and entered the same skep. In the afternoon this mixed lot went off faster than the old man could follow them and were lost. In the evening put back first lot. First saw and helped in a hybrid queen. Next, unfortunately, saw a yellow queen. However, determined to chance it, I helped her in. Then found a black queen which the bees killed.

June 15th. Found two dead queens outside. Swarmed. Successfully hived, but part of them came out in my presence, and went off. Well, I was not going to lose them. Over an iron fence I went, through a gate into a fallow field, where an engine was cultivating. It was a little down-hill at first, so I managed to keep up: but when it came to going up-hill, over fresh cultivated ground, I got pumped, and the bees drew away fast. I shouted to the engine-driver, who joined in the chase, armed with a shovel. I struggled through a field of beans; he struggled through a field of clover. All no use, the bees beat us easy, won in a canter, and were lost. At the end of a mile we were both done. I do not know what the engine-driver said, but I confounded those maniac bees. In the evening put back what were left, and took away fourth super.

Owing to the rain, they were quiet till June 18th, when they swarmed again. Put back. Saw and helped in a beautiful yellow queen. Caught and took away six queens, some of them apparently hybrid and some yellow. Rather fancy I saw another queen go in, but as the swarm was about two and a half times larger than a usual one, it was difficult to find the queens. They are ready to come out again, but the rain and the cold keep them in. Even these bees do not fancy a thermometer below sixty in the day-time and thirty-five at night.

June 21st. I was wrong. These bees swarmed again. Thermometer, fifty-nine; strong, cold N.W. wind.

I was in the garden at the time. They came out at three o'clock, and danced all round the house. Some of them rested on the roof, some on the ground, and some on shrubs close by. At last they induced No. 3 to come out and join them, when they immediately settled. Put back in the evening. Did not see a queen.

June 22nd. Examined No. 3. Found a queen, hardly any bees but drones, and very little brood. There is an end of any chance of honey from this hive. Raining, and colder than ever.

Now, all this time these bees have not done any work. The foundation in the supers is untouched.

On June 5th No. 1 swarmed, joined a swarm from No. 8, and were hived in No. 8. Those miserable bees, which live in No. 7 hive, have mixed themselves with Nos. 1, 2, 3, and 8. They have had two swarms from No. 2, and two from No. 3, have lost a portion of their mixture, and have caused the loss of a large swarm from No. 8. The consequence is that Nos. 1, 2, 3, 7, and 8, will produce little or no honey.

Misfortunes never come alone. No. 5, after starting well in the spring, lost its queen, and set up a fertile worker. Had to be destroyed. At the best, this season will be the worst since 1882, so my prospects are somewhat gloomy. A bad season, low prices, and mad bees, are enough to make one resolve never to keep bees again.—G. C. E., *June 22nd.*

SKEP COVERS.

This skep-cover is nothing more than the ordinary zinc cone cut in two horizontally and put together again. It consists of a lower portion A, in the form of a truncated cone, fitting well over the hive, and large

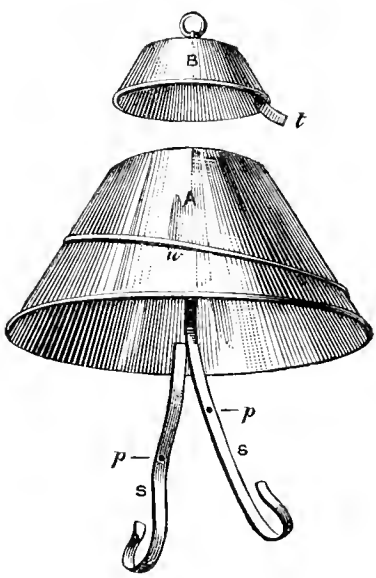

Fig. 1.—Side View.

enough at the top to admit of easily manipulating a feeding-bottle, &c., through the opening. To the lower edge on either side is soldered a thin strip of metal (S.S.); holes are punched in these where they touch the edge of the floor-board, and through these holes a small nail or screw is driven so as to fix the cover in its place; additional security is given by tying the ends of these strips (which are bent into loops for the purpose) to the pedestal of the hive-stand, as is shown in figure 2. A bit of stout galvanised wire (W) soldered obliquely round A, conducts the greater part of the wet which falls upon it to the rear. The second portion, B, is merely a small tin basin which, when inserted, fits closely over A. It is furnished with a ring-handle for lifting it off, and a small projecting 'tag' of tin (*t*) is soldered into the lower rim: should B become tightly jammed on A, the slightest movement of *t* will loosen it at once and allow of its being

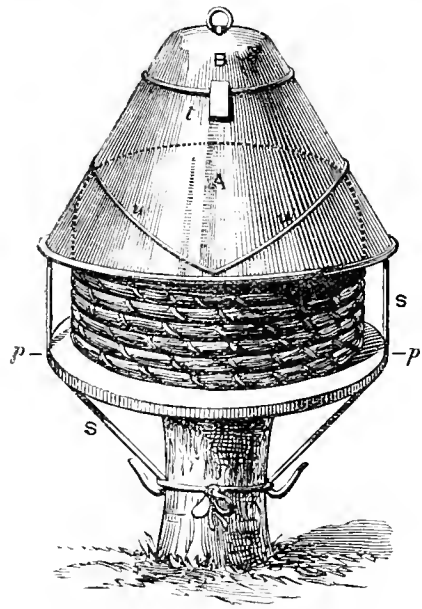

Fig. 2.—Back View.

lifted off without any jar or shaking. This cover, while affording all necessary protection to the hive, serves also to fasten it securely to its floor-board for the greater part of the year—*i.e.*, except when supering, it remains a fixture: it ensures a great saving of time, because feeders can be at once refilled, changed, or removed, and the hive inspected, through the opening in the crown without removing the cover, it being only necessary to lift off the lid B; it is not expensive; zinc is doubtless the best material, but even if made of light tin a coat or two of paint renders it practically everlasting. The dotted line in figure 2 indicates the position of the hive within the cover. A diameter of eight inches gives a convenient size for the upper opening, and this may be six inches or more above the crown of the skep.—C. E. Shelly, *Hertford.*

SOUTH AFRICAN BEES.

Permit me through the medium of your columns to reply in general terms to the numerous letters, &c., I have unexpectedly received in reference to 'exchanges' of Ligurian and Syrian or Cyprian bees for South African 'blood.' Many of these would, perhaps, have been more acceptable but for 3*s.* 7*d.* outlay in all, for 'deficient postage.' However, while I heartily thank my correspondents for their communications, and should be pleased indeed to accommodate them all, I must beg to remind them that I am so far removed from 'modern' bee-furniture, and especially bee-travelling appliances, that I have yet to learn from one that is well versed in these matters the best method of procedure to ensure success in transport. I must, therefore, needs wait to receive from England, perhaps through your valuable *Journal* (the acquaintance of which I have but recently made) some practical information as to the kind of box or cage found by experience to be *best* calculated to convey them; and the accessories also most likely to secure their safety for so long a voyage.

As I hope to be placed in possession of these essentials erelong, I will seek the best means I can of satisfying all

requirements. I should, perhaps, add in further reply' that if 'Africans' found ready favour, and I am convinced they will when once tried, either variety might be raised pure, and, I doubt not, in any desired quantity. We are in the second month of winter, and the weather is just now cold and wet.—J. W. Stroud, *Port Elizabeth, Algoa Bay, Cape Colony, S. Africa, May 19th*, 1885.

SYRIAN BEES.

Your readers will remember that some time ago a series of interesting notices by Mr. Hewitt appeared in your pages on the subject of 'Syrian Bees.' The temper, productiveness, and general qualities of the race were described in great detail, and painted in very tempting and rose-coloured pictures. Gentleness of temper was the point more specially dwelt upon, this being described as so marked that various kinds of severe tests, shaking into boxes, &c., might be tried with impunity; and this not only without veil or gloves, but even any proposed amount of the usual raiment of the human frame might be taken off for the process without fear of so much as a single sting.

All this was in startling contrast to another well-known 'pronouncement' by a master in the art, who, in a phrase now almost historic, had acknowledged defeat by the exceeding viciousness of the Eastern races, and after making full trial of their qualities had decided to 'clear his apiary of these truculent pests.' Nothing could be more diametrically opposed than these two experiences, and the contrast seemed still rather strange notwithstanding the solution offered by Mr. Hewitt, that the failure was caused by the operator having forgotten to work without smoke.

Since these notices appeared I have frequently searched the *B. B. J.* as it came out for some testimonies from other workers, but none have appeared. Yet among the readers of the *Journal*, many hundreds, I should think, must have been trying their fortune with these races. I am led to think this from a late notice by Mr. Benton, in which he says, that latterly, while Cyprians are the rule in Germany and Carniolans in America, Syrians seem most wanted in England. But those who have tried them seem, somehow, unaccountably reticent on the subject. The greater lights and the ordinary workers alike appear inclined to keep their own counsel. Mr. Raynor was mentioned by name in one of Mr. Hewitt's letters, as one who might be expected to give his opinion. But Mr. Raynor says nothing. Some time ago an editorial notice appeared in the *Journal*, saying that the merits of the Eastern races were being made the subject of experiment by competent judges, and in due time the results should be made known. It is more than two years since this appeared; but the due time would seem not to have arrived.

I have myself invested in Syrians; and of necessity have begun to have my own ideas, at least as to their temper. But, counting myself a learner rather than a teacher, I do not wish to offer my opinion at present; knowing that there must be very many who, from greater knowledge and wider experience are better entitled to be heard. As the subject is of general interest (since every one would wish to know the best breeds to cultivate), I hope you will give insertion to this letter, which perhaps may induce some of the many experimenters to tell us what they know.—S. L. B.

THE WAYS OF BEES.—HIVING SWARMS.

The ways of bees seem to be inscrutable. From a recent issue this season would seem to have been productive of many odd things in swarming. I send you the following as being in some degree worth noting for its bearing on the nature of bees. It seems to indicate some source of information possessed by them which is to us a mystery.

When I commenced bee-keeping three years ago, there were no other bees in the district nearer than three miles, and had not been for years. My first swarms were brought from a distance of many miles. The last bees that were to be found in the neighbourhood had ceased to exist some three or four years before I began. They belonged to a farmer who lived near my church, about a mile from my own residence. He told me they died out by the continual losses of swarms, as they all had a way of making for a certain hollow tree in the churchyard out of which he never could get them.

This summer a very large cast of hybrids came out of one of my hives, and settled on a rose-bush. It was soon got into a skep, and I left it on a chair beside the bush to be put into a bar-frame in the evening. An hour after they issued from the skep; and my gardener saw them pass over his head; and he pursued them for a few minutes till hopelessly distanced. They went, he told me, 'as straight as an arrow' till he lost sight of them over a hill to which he pointed. I made no attempt to follow them, thinking that finding no rest for the sole of their feet they would come back; but a suspicion flashed across me when I observed that the line they had taken was exactly the direction of the church. Next day they were reported found; and in the fatal tree! And there they still abide.

Now how did they know of it? Within this distance there are thousands of trees: and as I said the tradition must have been broken, if there was a tradition, because there were no bees in the neighbourhood for some years before mine were imported.

As I am writing I should like to mention, if you have space for it, a new and easy method of hiving swarms of which I think I am the first inventor.

Many of my swarms this season had settled on rose-trees while I was looking on; and though I secured them all it was with much loss to the roses; the queen being often left behind and the whole colony returning to the bush to be shaken over again. Much meditating by night I thought if another swarm came to a rose-bush I might watch the queen and take her before the swarm came after. As luck would have it, the next day I saw a swarm—the last of the season—coming towards a standard rose-tree; the leaves of which began to assume an appearance as if sprinkled from a pepper castor. I watched where the pepper was thickest, and there saw the queen, walking round a twig, and took her away by the wing in my fingers. I did so with some small trepidation; but the bees never took the least notice. Shaking a few bees off the bush into the skep I threw the queen in after, and went away leaving the skep on the ground. It all took less time to do than I have taken to write it. Coming back in half an hour I found the swarm safely packed in the skep.—S. L. B.

BEES UNITING SPONTANEOUSLY.

On the 13th inst. (June) I attempted to hive in No. 9 a 2-lb. swarm, but could not induce the bees to enter their new home, though two out of the four frames it contained were from the parent hive, and one of these bore a goodly patch of capped brood—always a special attraction—to say nothing of the particularly comfortable quarters they were invited to occupy as tenants at will. They were, indeed, a refractory lot, for as often as tumbled out in front of the entrance they took wing without loss of time, but on being copiously rained upon with the garden syringe, returned and settled on the roof or sides of the hive—anywhere, in fact, but within it. The queen and a few attendants were twice put indoors with a feather, but it was 'no go,' for out she came immediately, and would not be persuaded. Now when you wish to do some one 'a good turn' (as in this case),

and find your efforts unappreciated, it is, to say the least of it, rather trying to the temper; so, after a couple of hours of this game, with the thermometer at 110° in the sun, I gave it up in disgust and left them to their obstinacy and the shade of a table-cloth rigged up on four clothes-props. About 9 o'clock same evening, the gardener sent to say that the bees had just entered No. 9 of their own accord. It required a forgiving spirit to supply the customary half a pint of syrup, but they got it; and all was well for that night. As her majesty was an elderly dame, I mentally decided to 'remove' her next morning, and to unite this 2-lb. lot with a swarm of 3¼-lb. hived in No. 8 on the previous day. The first part of the programme was mercilessly put into execution at 10 a.m., and the shades of evening were awaited to carry out the second part. But men *pro*pose, and in this case it was the bees who *dis*posed, for about 3 o'clock in the afternoon my attention was arrested by an unusual commotion among the promenaders on the alighting-board of No. 8. On opening up to see what was going on inside, found a vast concourse of bees; the six scantily covered frames of yesterday were now densely packed. But how came they so? Marvelling somewhat, and pleased withal, I passed on to examine the disconsolate inhabitants of No. 9, but lo! the bees had flown, save and except a couple of hundred or so of young nursemaids who remained to look after their charge. The mystery was solved, the bees, finding their queen gone, and probably divining my intention, had considerately united themselves to their next-door neighbours to save me the trouble; and, what is more, they had been well received—not a single case of fighting. The hearts of this happy family were further gladdened by the addition of the 200 faithful ones, who, with the frame of capped brood and another of drawn-out foundation (Abbott's No. 2 Dunman), were speedily restored to their fellows, constituting 5-lbs. good of worker bees. I hope they will be properly grateful. The empty house—No. 9 Bee Crescent—was shut up after its furniture had been removed, and is visited but rarely by any of its late inmates, who continue to thrive, and will shortly have a top storey added to their present domicile.—WRINKLES.

[Spontaneous unity is not uncommon. Queenless stocks which are robbed frequently unite with the robber stock. —ED.]

CARBOLIC ACID.

I see in a recent number of the *Journal* a question as to the use of carbolic acid. I should like to be allowed to give my experience as a caution in the use of it. I found one afternoon in the late autumn a hive containing saved condemned bees was being robbed, they were in a modification of Abbott's Combination Hive, and I had raised the back dummy about half an inch, and put a saucer of cappings from comb in at the back to be cleared out, but the hive not being over strong the others soon commenced robbing. To stop this I took a feather dipped in carbolic acid and brushed the alighting board; this stopped the incoming bees at once; but I found fighting going on at the back, so I then sprinkled some acid at the back, and threw the feather in there as well, closed it down, and was obliged to leave it at that. On my return after dark I went to see what the result had been, and found on opening the hive that it was entirely deserted. I therefore concluded that they had after all finished the robbing and killed the bees, so I tumbled in another lot of bees, and thought it was done with beyond a lesson learned, not only not to give plates of honey even when closed in the hive, but to look after weak stocks more closely. But you may judge of my surprise when about two days after a neighbour came in to say that there was a swarm of bees in their cabbages; and on a friend going for me, as I was away at business, there, sure enough, was my small stock clustered round the stalk of a cabbage, and had apparently been there two nights at the least, and wet part of the time, too. Now, does it not seem as though the strong smell of the carbolic acid drove them out of house and home?—C. B., *Dudley*.

BEE TOURS IN IRELAND.

Started in early spring and gave advice regarding treatment of skeps and bar-frames. The majority of bee-keepers wonder why bees require feeding in spring, as they (the bee-keepers) feed only in winter. When you advise against winter feeding they listen with suspicion and wonder at their being fed in autumn and spring, and frequently in midsummer, according to 'wind and weather.' Some gentlemen bee-keepers examine their hives at all seasons, and are never done exchanging them from front of hall door into back shed, and out again in early spring. Others tie them up in sacks and place them on hay-lofts. No use in giving these people advice, they know too much, and you must listen to all they have to say in presence of Mr. Gardener and visitors of the 'big house.' After a short time the bees all pass away, never more to be heard of, and the hives and appliances stowed away in garden house. All now remains silent until the visiting season arrives again. A lady visitor says: 'Where have you the bees you talked so much about to us?' *Gentleman:* 'Oh, they are all dead.' *Lady:* 'Perhaps there is some truth in the new method of management.' *Gentleman:* 'I think there must be, and I'm bound to give it a trial.' So you enter the garden for the purpose of transferring a few skeps procured from the neighbouring cottages into the disused bar-frame hives. The operation is gone through with dexterity and the necessary instruction given as to feeding, and not attempting opening up brood-nest or disturbing in this variable climate of ours. Six of such hives were supered and really strong on 5th inst.

The South of Ireland bee-keepers seem to be making headway, and their bees are in prosperous condition. I only met one instance of complete failure. A Mr. ——, an English expert, with a party of gentlemen, making a tour of Ireland, visited —— Farm Apiary, asked leave to inspect hives. Leave granted he proceeded, and found that bees did no work in sections, but deposited all their honey in body of hive. He took out all the frames of honey, leaving only a few for the bees, and packed them up for winter. The owner took the honey into Dublin, hawked it up and down, could find no market, but was advised to extract it. This done, he sent his honey to market in a large crock; this time he was again unsuccessful, and fetched it home disgusted with the proceeding. Winter over, he received a note from the expert asking how the bees got on he packed up last autumn. Upon examination bees were found all dead. The owner disgusted gave up, but still retained a few skeps.—J. TRAYNOR, *Tinahely*.

MEAD OR METHEGLIN.

How we make our brew. Well, Mr. Editor, that time-honoured beverage, yclept 'methagalum,' in common parlance, seems cropping up again. Mr. Thompson has kindly given his and his father's recipes for making it, and with your kind permission I will give ours. I say ours, as my better half is really the brewer on these occasions; aye, and some rare old stingo she will produce about Christmas-time, when the ringers usually pay us a visit each year; their remarks each recurring season is generally, 'Well, I think, Mrs. ——, your "methagalum" is better than it was last year.' But I myself being in the secret, may tell my brother bee-keepers that Mrs. —— says that our new-fashioned way of bee-keeping is not so good for the *brew* as was the

old smotheration system (very much in vogue, I am sorry to say, among cottage bee-keepers to this day) when the whole of the year's harvest—aye, and a poor one it was, too—was brought in and passed through the sorting process, the lighter-coloured portions cut up into slices for the sieve, and the dark combs put into the vessel of water; then in about twenty-four hours, after the greater part of the honey had run through the sieve into the pan below, the rest was put into the water and made to the strength or consistency to bear an egg. Strain off after well squeezing the combs, put into copper, and to every gallon of liquor put 1 oz. ginger, ½ oz. cloves, and ½ oz. pimento, in bags tied to a weight, to keep under out of the way of the skimmer, which culinary utensil must be used, as required as soon as any skum rises to the top of the liquor. Don't stop till it boils before skimming; skim all off as fast as it rises. Boil freely for twenty minutes, put in cooler, and, when cold, put into barrel, using no yeast; it will ferment of itself; and in six months you will have a beverage fit to set before the Queen.—Woodleigh.

EXPERIENCE IN QUEEN INTRODUCTION: AN APOLOGY.

While thanking you for inserting my 'Experience in Queen Introduction' in your last, I must apologise for my premature communication, as I have since found the queen must have been in the hive which I supposed to be queenless. I have so much confidence in the method, that I shall try again with a stock which is *certainly* queenless.—L. W.

BEE FLORA.

Your correspondent, writing from South Cornwall in the last issue of the *Journal* respecting bee flora, does not seem to attach much importance to this subject. The fact is that there are so many good bee plants well known to bee-keepers that it is scarcely worth the time to answer the question as to what is a bee plant. Bee-keepers in such favoured counties as Cornwall are very fortunate in having a good natural supply of bee forage; but even in such places the cultivation of some favourite bee plants will well repay the bee-keeper for his trouble and trifling expense; and the very fact that the climate and seasons are uncertain and unchangeable is a greater reason still why the cultivation of such plants should be encouraged, for the bees when their natural time to be 'up and doing' has arrived, will seek for forage, and in doing so unless it is near to their hives, they will seek afar, and will perish by thousands in doing so. In districts, however, where the natural resources are scant, it is the duty of bee-keepers to make the planting of bee forage a study. Your correspondent alluded to Arabis as a good early plant. This is so well known that I need not say anything respecting it, but the wallflowers should not be overlooked by bee-keepers. Some varieties come into bloom as soon as Arabis, and others follow in close succession, affording a fairly good supply of honey and pollen, besides being useful for nosegay and cut purposes when other blooms are scarce.—W. Hollins, *Tillington Avenue, Stafford.*

THE CAUSE OF FOUL BROOD.

This disease is caused by the injurious operations of a minute organism properly classed among the so called 'disease-germs' or bacteria. All allied organisms are exceedingly small creatures, only to be seen with highly magnifying powers; but all are veritable plants, consisting of essentially the same chemical elements and the same organic structure as the higher and larger members of the vegetable kingdom. Some writers class the bacteria with animals, because they usually have the power of moving freely in the liquid media in which they live; but these authorities cannot be well posted upon the characteristics of low vegetable forms, for the power of spontaneous motion belongs to the most of them, as indeed it does to many of the highest plants, in one or another.

But as plants, the bacteria are very simple in structure—an individual possessing all the capabilities of absorbing food, living, growing, and reproducing its kind—being composed of a single cell, and this of very minute size. The cell has, however, a wall of cellulose (wood substance) inclosing a semi-fluid material known as protoplasm, and this is true of all living and active vegetable cells from which all plant-structures are derived. The only appendage or other structural peculiarity of the bacterium cell or individual, is in some species a very fine whip-lash-like filament, which, being capable of rapid vibration, serves as an organ of locomotion. There are no limbs, no sense organs, no special digestive apparatus, no heart, no veins, no nerves. They gain their nutrition by absorption of fluid material through the cellulose wall, without any special opening for passage of anything in or out.

Propagation takes place by a spontaneous division of the single cell, so as to make of this two cells. Sometimes the two new cells remain attached, and these may again divide, always transversely, making four cells in a chain-like row. Thus any number of cells may exist attached to each other in a thread, but each cell lives altogether independent of its neighbours, and may at any time become, without injury, entirely separated. There is much difference among the species about this matter of remaining attached, and also a difference in the same kinds, according to the food-supply, mechanical agitations, &c.

Some species, and among them our organism of foul brood, have another method of reproduction, viz.: by the formation of 'spores' within the cell cavity, which are little masses of condensed protoplasm surrounded by a cellulose wall, and are, therefore, little bacterium cells, which have only to increase in size to become like the parent cell.

Still these spores have physiological characteristics quite unlike the adult cell. They resist the effects of injurious conditions, as of dryness, high or low temperature, chemical poisons, &c., which destroy the organism in other forms. Thus, all species of bacteria, as well as other plants in their normal vegetating condition, are destroyed by immersion for half-an-hour, in water at a temperature but little above 120 Fahr., while these spores, or some of them, may be actually boiled for a much longer time without being killed.

The organism of foul brood, when not furnished with spores, is killed by simply drying thoroughly in the sun for a few days, first being mixed in sufficient water to thin well the mass in which they exist. The spores, however, live under such conditions for some months, but in my experiments they seem to finally perish in a room kept heated for human occupation in less than six months. Freezing does not injure the spores, for I have had them develope after having been repeatedly frozen and thawed, and in some cases after an exposure to temperatures reaching 28° Fahr. below zero. But I am not sure as to the action of frost on the adult forms, not having had satisfactory materials at hand when the opportunity occurred for trying.

So long as the food-supply is abundant, and the other conditions of vegetative life are favourable, spore-formation does not occur in this species. When, however, the affected larval mass sinks down to the bottom of the honey-comb cell, there is little to be found of the organism but the spores. Cultivated in beef broth, in which the minute plant flourishes as well as in the bee-larvæ, the vegetative stage lasts under the temperature of summer weather (75° to 90° Fahr.) from two to seven days, *i.e.*, spore-formation does not sooner begin. The

length of time, however, depends on the quantity of the food-material, and my trials were with diluted broth, and in small quantities ranging from about one-fifth to one ounce, the inoculation being made with a very minute amount of the material containing the bacteria, and, therefore, but few of the latter. Had many been at first introduced, I have no doubt that spores would have been sooner found.

In the bee-larvæ, nothing so definite can now be stated upon this point, but the time seems to be longer. Spores are not found while the larva keeps its proper shape, and not until it sinks down into a jelly-like mass at the bottom of the cell. There is, by this time, a very offensive odour, due, probably, to the gases eliminated by the ferment action of this same organism, yet it does not seem to be putrefactive in its nature.

It ought to be thoroughly understood that no putrefaction or decomposition can take place even in so susceptible a thing as a young, soft-bodied larva, without the intervention of living organisms of some kind. It is, of course, known that young brood dies upon being too much chilled, and decomposition ensues, just as a bit of fresh meat kept in a warm temperature soon becomes putrid. But in both cases the putrefactive changes are produced by living agents, instead of spontaneously arising in the dead organic matter. There are, indeed, as many bacteria in a putrid bee-larva killed by cold, as in one destroyed by the organism of foul brood. Others have said, and I think that it is true, that the odour of foul brood can be detected and determined as different from that of putrefaction after death from other causes.

Sometimes it is certain that the usual putrefactive agents (species of bacteria quite distinct from, though of the same structure and general characteristics as that of foul brood) are found in larvæ dead of foul brood; but knowing well the ubiquitous character of these, I have been surprised to find the greater number of foul-brood specimens wholly free from the ordinary putrefactive bacteria, so that one can, with much reliance, gain pure cultures of the foul-brood agent from the dead larvæ. But by taking advantage of the fact that the most common of the putrefactive bacteria do not form spores, one can, by heating the gelatinous material left of a larva dead of foul brood, be quite certain of killing everything except the bacteria of the disease.

Does the organism of foul brood develope elsewhere than in the brood of bees? This is a very important question in the scientific study of the disease, and in our methods of fighting the malady. It might even be necessary to settle the point before a well-informed court of justice could properly decide a case. Only a few days ago I was appealed to for any possible help in tracing the introduction of foul brood in an apiary known to have been free from it during many years before. One colony of bees had been secured from a distance, and some months afterward the disease was found in this colony as well as in two or three others. None had been previously known in the neighbourhood. Upon inquiry it was ascertained that foul brood had existed in the apiary whence the colony came, but the owner believed it was entirely free from the trouble at the time, and had been for the two years preceding. An examination failed to reveal any suspicion of the disease. The man receiving the colony was certain it was diseased at the time of purchase: the one selling it was as certain to the contrary.

Now while the evidence at my command goes to show that foul brood usually comes from foul brood, it seems quite possible that in some cases a different source must be sought. There certainly is no difficulty in keeping the foul brood organism through many generations, and lasting through months of time, rapidly multiplying all the time, in beef broth. These thus grown in broth have their characteristic effects when transferred to sound brood.

If this result can be gained artificially, is it not plausible that under some circumstances in nature the organism may live and grow somewhere else than in the larvæ of bees? I have no further positive information upon this point, but there are indications that epidemics among other insects may be sometimes due to the same organism. Indeed, I should not be surprised to find that the scourge of the silkworm, called by the French *flacherie*, is really and truly the same offender: and what is more, we have among our wild native caterpillars sweeping epidemics caused by the same or a closely similar organism.

During the summer of 1883, the European cabbage-worm (*Pieris rapæ*) died throughout central Illinois in such numbers that their limp forms on the leaves attracted all but universal attention, and the numbers were so decimated that in the early part of last summer, scarcely a butterfly or worm was to be found, nor did they become numerous again during the season. If it should be shown that the cause of this destruction was really the same organism as that found in diseased bees, it would still remain to be proved that they could be transferred through the natural working of affairs, to the bee-hives, from the cabbage fields.

In the absence of knowledge, we may speculate this way: The butterflies lay their eggs upon the cabbage, and may readily come in contact with the dead or dying caterpillars (worms). They also visit flowers to sip the nectar, and now may be followed by bees, which we can see may sometimes carry home, upon this supposition, the deadly invisible foe.

All this is supposition; but does not the possibility of making such speculation suggest the need of further facts? The foul-brood question has by no means been answered; for there are scores of queries as pertinent as those here suggested, upon which we have no real knowledge. My own experiments and observations, begun a year ago, have been too little to call a commencement; and unless I am mistaken, aside from such observations as it has been possible for keen-sighted and diligent practical apiarists to make, no one in America has carefully studied the disease from the 'germ' standpoint. Two things have hindered my own work, viz., want of time, other things taking precedence, and the necessity of caging the experimental bees to avoid contaminating the bees of the neighbourhood. Doubtless Prof. Forbes, State Entomologist for Illinois, with his well-trained assistants, can be induced to undertake the matter; and, if so, there is every reason to hope that rapid progress will be made.—T. J. Burrill (*Read at the Michigan Convention.*).—(*American Bee Journal.*)

Wax-moth.—'There is a little insect closely allied to the common clothes-moth which does a vast amount of harm to the bee-combs. This is the honeycomb-moth, of which there are in England two species, both belonging to the genus *Galleria*. This little creature is continually trying to make its way into the hives, and is as continually opposed by the bees, who instinctively know their enemy. If it once slips past the guards the unfortunate bees are doomed to lose a considerable amount of their stored treasures, and have sometimes been so worried that they have been obliged to leave the hive altogether. As soon as it can hide itself in an empty cell—an easy matter enough for so tiny a moth, which harmonises exactly in colour with the bee-combs—it proceeds to lay its eggs, and having discharged its office, dies. The eggs soon hatch into little grubs and caterpillars, with very hard horny heads and soft bodies. As soon as they come into the dark world of the hive, they begin to eat their way through the combs, spinning the while a tunnel of silk, which entirely protects them from the stings of the bees. They can traverse these tunnels with tolerable speed, so that the bees do not know where to find their enemies: and if, perchance,

they should discover one of them at the mouth of its burrow, the hard, horny head is all that is visible, and against its polished surface the sting of the bee is useless. The rapidity with which they drive the silken tubes through the comb is really marvellous, and even if they get among a collection of empty bee-combs, they make as much havoc as if they were bred in the hive from which the combs were taken. The two species of honey-moths may be easily distinguished by the shape of their wings, *Galleria alvearia* having the ends of its wings rounded, and *Galleria cereana* having them squared.'—*Rennie's Insect Architecture.*

Science and Bee-keeping.—The Ipswich Scientific Society recently held a very successful conversazione in the Public Hall of that town. It was attended by about 800 of the *élite* of the town and neighbourhood. Amongst the great variety of scientific exhibits, one of the most interesting was the stand of Mr. S. J. Baldwin, expert of the British Bee-keepers' Association. The manufacture of comb-foundation and other arrangements to economise labour, thereby adding to the profits of bee-keeping, attracted considerable attention. Another pleasing feature was the microscopical department, where a variety of slides were shown illustrating the marvellous anatomy of the bee, prepared by Mr. Garrett Garrett, of Ipswich, and lent by some members of the Suffolk Bee-keepers' Association, who explained the exhibits to inquiring friends. It was a happy thought of the Ipswich Scientific Society to include bees in their syllabus. The study of the subject is so interesting and profitable that other societies may please go and do likewise.

A Stray Swarm Captured.—On Saturday afternoon, the 13th inst., the shepherd's boy here, a lad about thirteen years of age, was passing along a road near the village and saw a swarm of bees in the hedge. He at once went to a cottage and borrowed a straw skep from a cottager who used to keep bees, and without veil and only an old pair of holely gloves, proceeded to hive the bees; this he did, and carried them off home to his father's cottage safely, and, strange to say, without a sting. In the evening he went back to the same spot, and seeing a number of bees clustering on the same place he went home and fetched a *tin tea-pot* and picked off the remainder of the bees, and these he also got safely home and put them in the hive, and at this date, the 18th of June, they are doing well.—A Hampshire Bee-keeper.

SHOWS AND BEE-TENT ENGAGEMENTS.

Essex.

July 8	...	...	Southminster.
,, 9	...	...	Stock.
,, 16	...	...	Broomfield.
,, 22	...	...	Easton Lodge, Dunmow.
,, 23	...	...	Wimbish.
Aug. 12	...	...	Marks Hall, Harlow.

Bedfordshire.

July 15, Bedford, Potter Street Grounds.

Middlesex.—July 8, 9, Gunnersbury Park.

Hertfordshire.—July 9, Hatfield.

Lincolnshire.—July 30, 31, Grimsby.

Glamorganshire.—August 5, 6, Neath.

Devon.—July 15, Axminster.

Berks.—July 14, Home Park, Windsor.

Surrey.—August 12, Lower Cheam House, Sutton.

The Rev. W. E. Burkitt writes:—'Can anyone give me the address of a good bee-master at (or near) Sydney, who would give my son, who has lately settled there, hints on commencing bee-keeping in the colony? His address is W. M. Burkitt, G.P.O. Sydney, N.S.W.'

Echoes from the Hives.

Harborne, near Birmingham.—Swarming has been very late this year, but those who fed their bees obtained plenty of swarms the first week in June; since then the weather has been unfavourable, and the bees have not made much progress in the supers. White clover will soon be at its best, so we all hope the weather will soon change for the better. I had two casts last Sunday, nineteen days after the first natural swarms. Is this not a much longer time than is generally the case?—Lordswood. [See Reply to J. J. Hounsfield, p. 227.]

Oxford, June 13th.—In the midst of glorious weather the warm rain of a week ago was followed by a clear blue sky, and, if your readers will forgive me for using the expression, 'things have been seen to grow.' Swarms and casts are the order of the day with the bees, and, with very few exceptions, honey up to the present time appears scarce, though we may expect a fine influx of the golden syrup during the next few weeks.—E. H.

Bishops Waltham, June 18th.—I am a beginner this year in bee-keeping, but hope to give you the result at the end of the year. I am keeping a strict account. Yesterday, the 17th, I took off two 2-lb. sections in good order. The bees are working well. Lovely weather.—A Hampshire Bee-keeper.

Cheltenham, June 19th.—For the last fortnight glorious weather. Chestnut and May honey was well gathered, and now the bees are in full work and with every prospect of a grand glut from the limes, &c.—W. D. Slade.

Fairford, June 19th.—We have had beautiful weather the last three weeks for the bees, and they are making the most of it. There were not many swarms in the first three weeks in May, but there have been many since, and most of them very large ones.—J. Cook.

Horsham, June 24th.—What a splendid time it has been for the bees! I have a Stewarton seven storeys high, Cowan hives three and four storeys high, containing thirty-three and forty-four frames. The hives are literally filled with bees, and we have been obliged to prop up the front of hives, so as to give the bees plenty of room to fly in and out. They are collecting honey rapidly. I need hardly say these monster hives are destined for extracting, but as we have not the time to do it now we put one hive on the top of another. I have several two storeys, with racks of sections above. By giving room in advance of requirements, we have succeeded without having a single swarm, although swarms have been the rule all round, and consequently no honey. We have had no swarms, but have quantities of honey.—Thos. Wm. Cowan.

Hunts, Somersham, June 24th.—After writing last month, 'What horrid weather!' there was an agreeable change: cold, wet, and miserable weather was followed by weather which must have gladdened the hearts of the despondent. Honey has been gathered rapidly during the month, and swarms have issued in such quantities as to perplex the cottagers of the neighbourhood generally. The season is likely to be a good one, but amongst the cottagers I am afraid, through their having so many swarms and hiving each separately, they will not have as much honey as by more judicious management they might have done. For a few days we have been threatened with a recurrence of last month's unfavourable weather; but while I write it is simply glorious, and the busy hum in my apiary is delightful.—C. N. White, *Hon. Sec. Hunts B.K.A.*

Leamington, Weston, Honey Cott, June 25th.—'Another wet day,' also very cold and depressing. Since my last echo we have had intervals of very showery, also very hot and very cold weather. It has been good for swarming and honey-gathering at times for a few days, and

then sudden checks. I have just looked up among the hives. The bees are nearly as still as death, with large clusters at the entrances, and only here and there one that dares venture out. If the weather does not change for the better soon, the season here will not be up to the last year or two.—JOHN WALTON.

Odcombe, Somerset, June 25th.—The weather in this district is all against a very profitable honey harvest—week after week with scarcely an hour's sunshine. We rely mostly on the early fruit blossom, on which the bees did fairly well, and brood increased rapidly; then the orchards, for which this part is famous, the apple-trees were a mass of bloom this year, but unfortunately the weather did not permit the bees to take advantage of it. For a few days at the beginning of the month honey literally flowed in, and the sections were filled with comb as if by magic, but on the fifth came a check, and they have not done so well since. Our 'honey flow' practically ends when the meadows are mown for hay, and that is fast becoming pretty general in the district. I fear that unless we have very favourable weather during the remainder of the month, unfinished sections will be plentiful. I hear of very few complete ones having been taken. Natural swarms are coming very fast. Hives being remarkably strong.—J. S.

Chester, June 25th.—Everything at a standstill in this district. The last ten days nothing but rain and cold winds; the sun invisible. Supers of every kind deserted, and stores rapidly diminishing, and all this time the white clover is in bloom; enough to drive one to despair.—CHAS. ROBERTS.

NOTICES TO CORRESPONDENTS & INQUIRERS.

I. H. L.—1. *Hiving Swarms.*—You were fortunate in securing your swarm. After remaining all night, and rising again in the morning, the chances were that it would decamp altogether. Had you placed on the ground a skep, wedged up three or four inches on the side close to the fence, and brushed the bees *downwards* with feathers moistened with carbolic solution, you would have driven into it every bee in five minutes, without any shaking, and with very little disturbance. 2. *Carbolic Solution.*—The carbolic-acid solution we use consists of four tablespoonfuls of the acid to one quart of water, to be well shaken together before using. A portion of the mixture is kept in a wide-mouthed bottle and applied with a strong goose-quill. 3. *Cowan's Hives.*—Consult C. T. Overton, Crawley, Sussex. 4. *Legs of Hives.*—Yes; it is a mistake to have the legs of hives too long. Twelve inches is quite sufficient, and they should be three inches square. The hive looks better and the bees reach the alighting board with greater ease. The Americans usually place their hives on the ground, spreading saw-dust or ashes beneath them.

ARTHUR S. HUGHES.—*Drone-comb.*—1. Bees, when without a queen, or having an unfertilised one, generally build drone-comb *only*. We advise you to cut away the lower half of the combs—consisting of drone-cells—in the six central combs, and to move, or rather leave, the two outside combs on each side with drone-cells, as they are. 2. *Carbolic-acid Solution.*—For carbolic-acid solution see answer to 'I. H. L.' Bees dread the scent of it as much as they fear smoke.

W. E. BURKITT.—*Bees Revivified.*—If you injected smoke at the entrance, the commotion caused by it, and the sudden filling of the honey-sacs, on a warm day, with no current of air through the hive, would have the effect of stupifying the bees. Those bees, in the upper part of the skep, upon which the smoke did not take effect, would escape. We have several times experienced a similar result both in the case of skeps and frame-hives, and *never* inject smoke at the entrance now. If no smoke was used, we can only suppose that, in making preparations for the operation, the colony was disturbed, when the crowding of the bees to the entrance caused a block, and a partial suffocation followed. In hot weather with hives full of young bees, and newly gathered honey, operations of this kind are disturbing and dangerous to the colony. We should have preferred to allow the second swarm to issue, and have returned it the same evening after excising queen-cells, or leaving the returned princess to destroy them.

J. J. HOUNSFIELD.—*Casts.*—Eighteen days is an abnormal interval between the first and second swarms. Casts generally leave their hive on the ninth day after the first swarming; but circumstances prevent this rule from being always acted on. By referring to an 'Echo' with the signature 'Lordswood,' you will find that in one apiary two instances of second swarms leaving nineteen days after the first have occurred.

M. C. H.—The extract in our columns in reference to feather alum (*Federweis*) was taken from a foreign periodical, but we have not made any experiments as to its properties.

J. NEWBERRY.—*Burrowing Bees.*—The bee forwarded is called *Andrena Trimmerana;* it belongs to the family of Andrenidæ, of which there are upwards of eighty species in Great Britain. The cells they construct are formed of sand-grains agglutinated together by a viscid saliva. The cells are thimble-like, smooth inside, but rough outside. In these cells are found pellets of pollen, slightly sweetened, about the size of a currant; the instinct of the bee teaching it the amount of nutriment required for the subsistence of the young which shall proceed from the eggs to be deposited.

ESSEX.—There is much in your letter that we agree to and sympathise with. As, however, it is not accompanied with your name and address, we regret that we cannot give it insertion. In the meantime, if the firm who in your judgment is the cheapest and most satisfactory of the makers of bee-appliances would advertise in our columns, bee-keepers generally would have the opportunity of contrasting their goods and their prices with those of other manufacturers. It is a pity that their light is hidden under a bushel. In matters of this kind we have much faith in the law of supply and demand.

G. S. R.—*Comb.*—The sample of comb does not contain any symptoms of foul brood. The queen has somehow managed to ascend to the super and has deposited a few sporadic drone-eggs; otherwise, both the comb and the honey are what they ought to be.

R. CHESHIRE.—*The Law on Bees.*—A swarm of bees is the property of its original owner so long as he can keep it in sight, afterwards it becomes the property of the first person who secures it. No man can swear to bees; with lost identification the property ceases, and becomes in common. This is the law as decided by more than one County Judge. In the case as stated by you we consider that Mr. Jones having 'lost sight of his bees for a few minutes,' has thereby lost property in them; and Mr. Smith having secured them, becomes the owner of the bees.

W. KEINION THOMAS.—*Books on Bees.*—*Modern Bee-keeping: or Hand-book for Cottagers,* price 6*d.*, and Cowan's *Bee-keepers' Guide-book,* price 1*s.* 6*d.*, we can recommend as the simplest, cheapest, and best books on bee-keeping. To be had of J. Huckle, Kings Langley, Herts.

H. FUGGLE.—1. *Preserving Queen Cells.*—A perforated zinc box would answer as well as one of wire gauze. 2. *Size of Box.*—About two inches every way. 3. *Position of Queen-cell.*—Yes: the cell should be sus-

pended as nearly as possible in the position which built. 4. *Bees in Box.*—No; but let the heat from them have access, and preserve it by well wrapping up the boxes. 5. *Time after hatching before Queen is given to stock.*—As short a time as possible; do not omit to give her access to food while waiting. 6. *Queen-introduction.*—Yes; in the usual way.

TYRO, *Hampstead.*—1. *Fighting.*—The two bees which you saw fighting were, one a robber which had gained access to the hive, and the other, what would be vulgarly termed 'a chucker-out.' 2. *Suspected Fertile Worker.*—If you cannot find the queen, and you see that the brood in worker-cells has dome-shaped coverings standing up above the level of the comb (drone brood), you have a fertile worker, or infertile queen. If the brood is normal and you find eggs, the queen is present, even though you cannot find her. 3. *Ants.*—Stand the legs of the hive in saucers of water or of oil.

A. F.—*Swarming Vagaries.*—The explanation is as follows:—When the first swarm issued the queen got lost or injured, and so the bees returned. Meantime two young queens had hatched, and the swarm re-issued in two parties, each with a young queen. These were the two queens you saw in living in your bar-frame hive, so that now both your stock and swarm are headed by young queens.

MISS NEVILLE.—1. *Artificial Swarming: Finding the Queen.*—In artificial swarming or dividing, unless you find the queen, you cannot know in which division she is. The difficulty in finding her will soon disappear by practice, and you cannot be a successful bee-keeper until you have learned to find her. You do not need to handle her. The frame on which she is parading with her subjects is removed bodily, and placed with one or two others on the old stand to receive the foragers and the old stock removed to another stand. However, another plan which does not require to find the queen may be of service to you: divide the contents of the hive to be divided equally between it and a new one (by equally we mean give each hive half the brood and half the bees), stand the two stocks thus formed right and left of the place of the old one, so that the new entrances are at equal distances from the old one. Whichever half does *not* contain the queen will proceed to raise one, and the presence of queen-cells after three or four days will inform you which it is. 2. *Number of Frames.*—Fifteen would be ample. 3. Yes. They will raise a queen.

A TYRO IN BEE-KEEPING.—*Young Queens.*—The young queen was probably lost on one of her wedding flights. These young queens will take repeated flights in search of drones, and if they fail in their object usually perish when abroad, either becoming chilled, or being destroyed by birds or other enemies. Encounters between old and young queens generally result in the destruction of the former.

W. GROOM.—1. *Supering Skep.*—You had better get from a hive-manufacturer a crate of sections, and as your swarm is hanging out for want of work put it on at once. 2. *Swarm issuing from skep and returning.*—The queen no doubt fell to the ground and was lost. They will probably issue again headed by a young queen.

H. G. B.—*Third swarm from frame-hive with crooked combs.*—Had you examined the cluster remaining until ten p.m. on the log of the hive you would have found a queen. She no doubt found her way back with her subjects, and it is not likely they will swarm again. You had better cut out the combs, straighten them and tie them into the frames again; you will then be in a position to ascertain the state of the hive at any time. At present you are in as bad a position as if you had a skep. For the benefit of numerous inquirers on the same subject we give the *modus operandi:* Make a 'transferring board,' which is a kind of grid-iron formed of lathes nailed about an inch apart on to two pieces of wood; get ready some tape about ½ inch wide. Lift the frames into which the combs are irregularly built out of the hive bodily by means of two pieces of lath passed under the ends of the top bars; cut out one comb at a time and brush the bees off into the hive. Lay two pieces of tape on the transferring board and lay the comb on it; straighten the comb by cutting the concave parts down to the midrib and press it flat, the convex side will compress sufficiently; lay a frame round the comb and tie it in tightly; keep the midrib in the centre of the top bar, do not mind where the surface comes; be sure to keep the comb close up against the top bar. To prevent the tapes cutting into the comb put pieces of wood between them and the bottom edge of it. Preserve all brood and keep it out of the hive as short a time as possible. Discard the drone-combs. If the combs are so awkwardly built that they must be cut out in small pieces, piece them into the frames closely and support them by strings round the frames from side to side in addition to the tapes. As each frame is finished return it to the bees in the hive. After two days examine the hive, and if the combs are firmly fixed to the frames remove the tapes and string. If any have slipped replace them and tie in again more firmly. The bees will soon repair damages.

W. J. S., *Dunavarra, Lucan.*—*Queen badly diseased.*—Right to remove her, but by no means allow a new queen to be raised from her eggs. Six or seven days after removal, cut out all attempts at queen-cells, and give fresh eggs and brood from a really good stock, but better still, a queen-cell sealed.—F. C.

J. S., *Wandsworth Common.*—*Bees full of small Bacilli.*—Judging from what I have at present learnt of this peculiar form of disease, it will pass away. Changing the queen has immediately removed it in more cases than one. See reply to Beeswing.—F. C.

W. K.—*Pollen Mass.*—The material found on the head of a bee, and of which several cases have been seen by you, was a pollen mass from an orchid, probably morio. The mass had been in part dragged to pieces, and so used by the bee in the fertilisation of other blooms. See Darwin's *Fertilisation of Orchids* (page 34). The case is interesting, but not especially unusual.—F. C.

F. L., *Castle Ashby, Northampton.*—The queen was originally a poor one, and was used up completely.—F. C.

A. R., *Hexthorpe.*—The queen was of good appearance. Egg organs healthy. Spermatheca well charged. From all that was discoverable she should have been a good mother. Did she have a fair chance? Through sending her by rail I had to pay sevenpence excess carriage. All queens and bees for examination come perfectly by post in the smallest of fusee-boxes, with a tiny bit of sponge soaked in thin syrup; put all then with the note, inside an ordinary envelope. Honey in quantity for a few travelling bees is a mistake every way.—F. C.

MRS. E. WAY, *Raystead.*—The queen sent was but a shell. She had been turned out of a hive and lying upon the ground, small carnivorous beetles had devoured the contents of the body. They were finishing their repast when you picked up the remains and disturbed them.—F. C.

J. S., *Odcombe, Ilminster.*—The queen was a recently hatched unfertilised one. What you saw was perfectly normal. Consult any guide-book on casting to clear up your difficulty.—F. C.

BEESWING.—*Bacillus Gaytoni.*—All the bees examined contained the now well-known bacillus, which was denominated Gaytoni. I know nothing about means of treatment, simply because I have had no stock in my

possession so troubled, and Miss Gayton, upon whom I depended as my collaborateur in this matter, has, fortunately for herself, no specimens this season. Let us hope that she may have next! I have reason to believe that phenol does not influence it, that the bacillus becomes inactive in a very high, summer temperature, and that it generally, if not always, implicates the queen. Miss Gayton, suspecting this last point, removed the queens of the suffering hives, and left me to mourn the loss of her namesake. Some of the queens I have examined from suffering stocks have not appeared to be diseased. So that the malady in all probability can be communicated from individual to individual, like scarlet fever for example, which is a germ disease. The bacillus is but a moderate offender, and stocks are not generally more than delayed by it. Its diameter is only about the $\frac{1}{7000}$ of an inch.—F.C.

M. KEARY, *Drumgriffin.*—The queen was dead, and partly decomposed, which makes examination very unsatisfactory and doubtful, but I believe she had been in a badly diseased condition.—F. C.

G. STOCKS, *Cheshire.*—The reply is the same exactly as to M. Keary, above.—F. C.

W. W. B.—*Wax-moth.* The piece of comb forwarded has no symptoms of foul brood; it has been sadly riddled and devastated by the larvæ of the wax-moth (*Galleria cereana*). It is a pity that their depredations should have been permitted to have gained such head. These larvæ will soon spin cocoons, whence they will emerge as moths, again to set in motion the round of insect life. It requires great cleanliness and watchfulness, together with the prompt destruction of every moth, larva, and cocoon, to keep them in check. Strong stocks and Ligurian bees are the most efficient safeguards against them.

W. E. MORTON.—*Acceptance of Swarms.*—There is nothing unusual in the bees offered to other colonies, from your swarm, being accepted. In the first place, the swarm-bees were loaded with honey, and secondly, being presented on a fine day, when the adult population was busily engaged in the fields, and honey fast coming to the hive, it would have been strange had they been refused admittance. Your test is a very uncertain one, and not at all to be relied upon. On a '*swarming-day*' bees generally unite amicably. Two swarms will unite without any fighting taking place, and a swarm will often be received by an established colony in the most friendly manner. It should be at all times easy to discover the parent-stock, from which a swarm has issued, by its diminished population.

A. BRANNON.—(1.) *Adapting Board.*—There must have been a mistake in the adapting board for skeps, which was sent to you. There should be free communication with every section. Your own idea, as shown in your sketch, is a good one. Made double, of ¼in. board, placed crossway of the grain, would prevent warping to any great extent. (2.) *Best time for Manipulating.*—During the summer months the daytime is preferable to evening for manipulations. From 10 a.m. to 4 p.m., on bright days, is a good time, as the majority of the population of the hives is then at work in the fields; queens are more easily found, and the young bees, at home, are quiet to handle. But this advice only applies from the middle of May to, say, the middle of August. During spring and autumn, when no honey is to be obtained from the fields, it is almost certain destruction to open a hive at any time but early morning or late evening, on account of encouraging robbing, encasement of queens, and all the attendant evils.

We have received several other queries, the replies to which will be forwarded by post. Several communications, however, are subscribed with merely noms de plume *or initials, and to these replies cannot be forwarded.*

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[No. 174. VOL. XIII.] JULY 15, 1885. [PUBLISHED FORTNIGHTLY.]

Editorial, Notices, &c.

MOVING BEES.

In moving bees, two precautions are necessary—to see that they have plenty of air, and that there is no chance of the combs breaking down, and so injuring or killing the bees. We have constantly seen skeps, which have been brought to bee-shows for driving, &c., perfectly useless for the purpose, because they have not been properly packed.

Stocks should be generally selected for driving, as the old combs are stronger, and therefore travel better, and do not break down by repeated drivings. The best mode of packing them is as follows:—Get a piece of cheese strainer, rather larger in diameter than the skep, and also some corks, or pieces of paper crumpled up, to keep the combs from falling against each other. Then having puffed in a little smoke at the entrance, and having drummed the hive for a minute or two, turn it upside down, and push down the corks or pieces of paper between the combs, both in front and at back. Then put the strainer over the hive, and tie a piece of string twice round the hive, and keep the string from slipping by driving in some staples into the hive, over the string. If there is a crown-hole, this will have to be covered by a piece of perforated zinc, or a bit of strainer. Then tie a piece of cord cross-ways, to carry the hive, or put the skep in a sack, letting it rest on two pieces of wood, placed at the bottom of the sack, so that the bees can get air through the crown-hole, covered by zinc or strainer.

In moving bar-frame hives, we practically follow the same plan, though we are not obliged to turn the hive topsy-turvy. We cover the top of the hive, having first removed the carpets, with a piece of strainer, and then tack on two strips of perforated zinc at right angles to the bars, and bend these over on either side, nailing the zinc to the bars, and also to the sides of the hives, to prevent the bars from being displaced. We then nail down the strainer by two more strips of perforated zinc, which run in the same direction as the bars, and the entrance is covered by a piece of perforated zinc, nailed on to the hive. If the bees have to travel any distance, the combs will have to be tied in or wired in.

But when it comes to sending bees to foreign parts, we shall have to provide them with food, and especially with water. The usual way is to get a small hive or box with two shallow frames, and at one end place a tube containing a sponge, which is kept moistened occasionally during the journey. Ventilation is provided by having slits cut in the sides and in the top of the hive, or a piece of wood may be cut out with a centre bit, and a piece of perforated zinc nailed over this on the under side, so that there is a little trough left in which dry sugar or candy can be placed. Sealed honey-comb is put in the bars, and carefully wired in, and the bars are prevented from being displaced by being nailed on to the sides of the hive, and the bottom of the bars are also more secure if screwed or nailed on to the bottom of the hive from the outside, or we can nail on strips of wood inside, so that the bottom of the bars may be held by them. We think, however, that there is a better plan than this though we have not tried it, and that is, to supplement the honey-comb which has been put in the hive by feeding the bees during the journey, by using the dummy-feeder.

On two of the sides of the hive close to the bottom, so as to prevent the bees being injured by the drip, cut out a piece of wood the size of your tin bottle, and then tack a piece of wood on to this to prevent the bees getting out, but leaving a slit $\frac{1}{8}$th inch wide by which the bees may be able to get at the syrup or water in the bottles, which have five or six holes in one of the shoulders. To keep the bottles in position some strips of wood will have to be nailed on to the box, in the same way as in the dummy-feeder. The bottles, having been filled with water or syrup, are tightly corked, and then turned upside down, the perforated shoulder resting on the piece of wood tacked on to the outside of the box.

USEFUL HINTS.

During the present month, the weather has proved all that the most ardent apiarist could desire. Sections have been rapidly filled, and finished, and the bodies of those hives where room was given for storage as well as brood have become, in their outside, or back combs, clogged with sealed honey of the finest quality. So far as our own experience goes, there has been an almost entire absence of the dark aphidean *honey*—so called, by a misnomer, truly, unless we wish to dub the

excreta of these tree-lice with the name of nectar, the drink of the gods! White clover has been, and still is, yielding plentifully. Mustard, cole, *et hoc genus omne*, are abounding in many districts, all helping to fill up the measure of abundance. Our ditches, and low-lying marshy lands, are becoming redolent of the sweet and strongly scented motherwort (*leonurus*), so useful as an antidote to that bane of the apiary *Bacillus alvei*, or foul brood, and so freely visited by all the varieties of the honey-bee. And last, but by no means least, the limes, with delicious scent, are beginning to perfume the air. After these the heather, and the second crop of the red clover for our Eastern races, will soon close the honey season of 1885. May it prove a successful one to all our brother—and *sister*—apiarists. *Apropos* of the latter, a lady friend was so badly stung when removing sections the other day, that she was confined to her bed for a couple of days. Although wearing a veil and gloves, the bees so insinuated themselves within her dress that she was dangerously stung in various parts of the body,—and by English bees, note, and not by the well-abused Cyprians or Syrians. Had our friend read and followed the advice given on 'Removing Sections,' under 'Useful Hints,' in our issue of June 15th, p. 202, the misfortune would not have happened, for instead of removing the whole rack, to operate at a distance from the hive, she attempted to pick out the finished sections, while on the hive, and to replace them with others, when most of the bees were at home. Will our friends kindly refer to the advice in question?

Register the Ages of Queens.—This is a most useful practice, since it is very important to know the age of every queen in the apiary. It will be remembered that—first swarms are headed by the old queen, second swarms, and all afterwards, by young ones of a few days old. This, and other data, may be entered on a plain card and placed under the cover of the hive for reference.

Young Queens.—In a season like the present, prolific in swarms, late after-swarms, however small, may be turned to good account by retaining them simply for their queens. These, when fecundated and laying, will be found most useful for supplanting aged and worn-out queens next month, and will repopulate dwindling colonies, and render them strong for wintering. These swarms should be treated as nuclei—hived upon three frames of comb, or foundation, or in small skeps, and set up on separate stands, isolated as much as possible from the rest of the apiary, with a southerly aspect. If a frame containing brood and honey can be spared from another colony, it will materially assist the nucleus. The union with other colonies next month will be easy and simple by removing the old queen, caging the young one on a frame of the nucleus, and transferring queen, bees, and frames to the old colony. From a *skep* nucleus the bees must, of course, be driven.

Feeding.—These after-swarms will require liberal feeding according to circumstances. All colonies whose combs have been freely submitted to the extractor, on the honey flow ceasing, will destroy their drones, both adult and larvæ, and should be fed without delay. Honey should still be extracted from full combs, and syrup supplied for winter stores by-and-by. Syrup-fed bees winter quite as well as honey-fed.

Condemned Bees.—Apiarists who wish to make use of these will do well to make early preparations, by bespeaking the bees and getting ready their hives. Not less than two lots of bees should be put together,—three are better. Newly extracted combs can be used for placing the bees upon, and will set the queen breeding, perhaps more speedily than foundation only. We have usually found cottagers willing to 'take up' their bees in the month of August. Where ordinary bee flora only exists, skeps will rather decline than increase in weight after the first week in the month. The cottager, where the frame-hive is coming into general use, will be chary of selling his driven bees for a trifle, which we earnestly trust will soon be the case; but where he still obstinately persists in *burning* the bees, after the custom of his forefathers, it is both an act of charity and a prevention of cruelty to purchase and to enlighten him. Some years ago we purchased two colonies of condemned bees from a cottager for a couple of shillings, united, and wintered them. The following spring they were supered early, and yielded in surplus honey-sections nearly 120 lbs. We shall never forget the look of astonishment pervading the features of their former owner, when, by special invitation, he visited our apiary to see the 'cases' of sections removed from the hive of his whilom bees, and exclaimed, 'I will *never* burn no more bees, no, *never!*' He is now the possessor of fourteen colonies in frame-hives, from which he reaps a good return.

Blackberries.—In localities where blackberries abound the honey collected from this source is said to be dark in colour. In our own neighbourhood we have a considerable amount of this forage, but have always attributed the dark honey to the honey-dew, or aphides. Will some of our correspondents take notes, and report to us on this subject? The blackberry pollen is of a bright purple hue; that from beans and white clover is grey; from mustard yellow, &c. &c. If any one would report to us, from observation, the colour of the various kinds of pollen collected from the bee flora of this country, he would confer a favour on all bee-keepers. There is a kind of pollen, of the brightest crimson hue, at times carried into our hives in large quantities, but the source from which it is obtained we have never been able to discover. Limes are said to supply dark-coloured honey. We have always thought it of a rich golden colour. Are not the aphides, again, the guilty ones here, since they generally frequent the limes in force? Ivy, we know, gives honey of a greenish shade, and thick and slimy as 'bird-lime, or the pitch of Phrygian Ida.'

Ripening Honey.—This process, when performed otherwise than by the rightful owners, must, we think, deteriorate the value of the honey. Application of heat—whether sun or otherwise—destroys

that fine aroma which exists only in honey recently abstracted from the sealed combs, and afterwards hermetically sealed in jars—aroma, which the practised expert knows so well, but which he finds it so difficult, or impossible even, to describe in words.

Conveying Skeps to Shows, to be operated upon *pro bono publico*. Such should *always* be inverted, and *so* conveyed to shows for use in the bee-tent, with a piece of very open cheese-cloth tied over the mouth. If this caution were observed we should see fewer broken combs, and bees suffocated in their own sweets, than at present is often the case. *Verbum sap.*

NOTTINGHAMSHIRE BEE-KEEPERS' ASSOCIATION.

From the report of the first annual show of the above Association (see p. 232), we consider there are good grounds for congratulating the executive on the success which has attended it. It has given us much pleasure to note from time to time the strenuous exertions which have been made by the hon. sec., Mr. E. Ferneyhough, of Radcliffe-on-Trent, to resuscitate this society, and to give it once more its proper place amongst the comity of associations. These exertions, we feel assured, have been productive of much benefit to the bee-keepers of Nottinghamshire, and we trust that they will support and uphold their secretary in his self-denying efforts on their behalf. The work of the county honorary secretary is of the most arduous nature, and we can well sympathise with the remark made by the Rev. N. Andrewes, hon. sec. of the Sussex B. K. A., that it would require ten men to do efficiently all the work that is required; and bee-keepers cannot be too grateful to those gentlemen who undertake this office. We trust that all honorary secretaries may have the reward of seeing the work of their hands established, and the satisfaction of having the warm support and hearty co-operation of those on whose behalf they are labouring.

GLAMORGANSHIRE AGRICULTURAL SOCIETY.

We have much pleasure in mentioning the liberality of the above Society in granting 20*l.* towards the expenses of the exhibition of hives and honey of the Glamorganshire B. K. A. to be held at Neath on August 5th and 6th, in connexion with the Agricultural Society's Show. The Association have secured the services of Mr. C. Brown, Bewdley, Worcestershire, who will conduct the bee-manipulations each day of the show. We trust that the result of this show will be the means of giving much encouragement to this young Society.

LINCOLNSHIRE AGRICULTURAL SOCIETY.

We would desire to remind our readers that the Lincolnshire Bee-keepers' Association will conduct the show of bees, honey, and hives, to be held in connexion with the above Society, at Grimsby, on Thursday and Friday, July 30th and 31st. The complete schedule of prizes has appeared in our issues of May, June, and July, and will found to be very liberal and attractive. Every information can be obtained of the Secretary, Mr. S. Upton, St. Benedict's Square, Lincoln, or of Mr. R. R. Godfrey, Hon. Sec. of the Lincolnshire B. K. A., Grantham. We have every reason to hope that this show will prove as great a success as those in preceding years.

WORCESTERSHIRE BEE-KEEPERS' ASSOCIATION.

The prize schedule of the third annual exhibition of bees, honey, wax, and appliances, appears in our advertising columns. It will be held at Worcester, in connexion with the meeting of the City and County Horticultural Society, in the grounds of Walter Holland, Esq., of Rose Hill, on August 20th and 21st. All particulars, with prize schedules and entry forms, may be obtained on application to the hon. sec., Mr. A. H. Martin, Evesham.

LONGSTOCK HIVE MANUFACTORY.

From an advertisement in another column it will be seen that the machinery, plant, &c., of the Longstock Hive Manufactory is for sale. We understand that the principals, Messrs. E. M. Hart & Co., have been settled in America for the past eighteen months, and that their well-known manager, Mr. H. Fitz-Hart, will also settle there in September or October next.

DEATH OF MR. WYATT J. PETTITT, OF DOVER.

We regret to announce the death of Mr. Pettitt, of Dover, which occurred a few days since. This veteran bee-keeper, who will be remembered for his zeal in bringing to the front the great advantages of scientific bee-keeping, has, at the age of some sixty-five years, fallen a victim to the pursuit which he loved so well. As many will know, his apiary was constructed out of the face of the cliff at the rear of his residence in Snargate Street. In taking a swarm of bees which had settled at a considerable altitude he was observed by a neighbour to fall. Assistance was promptly rendered and medical aid obtained, when he was found to have sustained a severe wound on the head, which rendered him insensible. From this he rallied slightly, but afterwards gradually sunk, and died in two or three days.

BRITISH BEE-KEEPERS' ASSOCIATION.

The next Quarterly Conversazione will be held at 105 Jermyn Street on Wednesday, July 22nd, at 6 p.m. Subject for discussion, 'Bee-keeping in its Educational Aspect,' to be introduced by the Rev. F. G. Jenyns, Rector of Knebworth, Herts.

Quarterly Meeting of County Representatives takes place at 5 p.m. on Wednesday, July 22nd. Subject for discussion, 'The desirability of securing satisfactory and uniform rules in Prize Schedules at Local and County Shows.'

PEEL MEMORIAL FUND.

The following additional subscriptions have been received, viz. :—

F. R. Jackson	£1	1	0
G. Walker	0	10	6

ASSOCIATIONS.

NOTTINGHAMSHIRE BEE-KEEPERS' ASSOCIATION.

The first annual show of the above Association was held in conjunction with the annual show of the Notts Agricultural Society at Lenton, Nottingham, July 2nd, 3rd, and 4th. Exceptionally fine weather prevailed during the whole three days; indeed, if such a glorious time had preceded the exhibition by a fortnight, the quantity of honey for competition would have been much greater, many of the entries not being filled, in consequence of the sections and supers in many cases being all but capped over, just rendering them unfit to compete.

This being the first show since the resuscitation of the Notts B. K. A., the executive may be heartily congratulated on its thorough success. The exhibition of honey was excellent, although the number of exhibits was small from the cause above stated. Very fair specimens of bees were on view in Observatory hives, and proved a source of great attraction and interest, as also did the Bee Tent, which was crowded each time to see the various manipulations that were very ably performed by Mr. E. C. Walton, of Muskham. In Class 11, for the best collection of bee furniture, a splendid show was made by Messrs. Abbott Bros., of Southall, London; Mr. E. C. Walton, Muskham, Newark; Mr. Meadows, Syston, near Leicester; and Messrs. Turner & Sons, Radcliffe-on-Trent. The tent was well patronised during the whole three days, and there is no doubt that the Notts B. K. A. will benefit considerably by an increase of members, many indeed joining during the show. The judges were Mr. R. R. Godfrey, of Grantham, and Mr. H. Bates, of Grantham, who performed their duties to the satisfaction of all concerned. The stewards were Mr. E. Ferneyhough (Hon. Secretary to the Association), Radcliffe-on-Trent, and Mr. A. R. Calvert, Radcliffe-on-Trent.

Appended is a list of the successful competitors:—

Bees.—Class 1. For the best specimens of Ligurian, Carniolan, Cyprian, or Syrian honey-bees—1, E. C. Walton, Muskham, Newark; 2, Abbott Bros., Southall, London. Class 2. For the best specimens of English bees—1, Abbott Bros.; 2, E. C. Walton.

Honey.—Class 3. For the largest and best exhibition of super honey, the produce of one apiary during the year 1885—2, Geo. Coope, Farnsfield, Southwell, Notts. Class 4. For the largest and best exhibition of extracted or run honey in glass jars, containing one or two pounds net weight of honey—2, Geo. Coope, Farnsfield, Southwell, Notts. Class 5. For the best twelve 1-lb. sections of comb honey, in crate—1, Geo. Coope; 2, John Beeson, Lamcote, Radcliffe-on-Trent. Class 6. For the best twelve 1-lb. glass jars of extracted or run honey—1, Mrs. Wotton, Widnerpool; 2, Frank H. K. Fisher, Farnsfield. Class 7. For the best super of comb honey—2, G. Caparn, Newton, Nottingham.

Hives.—Class 8. For the best complete and most practical hive, price not to exceed 30*s.*—1, Abbott Bros.; 2, E. C. Walton. Class 9. For the best complete and most practical hive, price not to exceed 7*s.* 6*d.*—1, Abbott Bros., disqualified. Class 10. For the cheapest, neatest, and best super—1, Abbott Bros.; 2, E. C. Walton. Class 11. For the best and most complete collection of hives and bee furniture—1, Abbott Bros.; 2, E. C. Walton; 3, P. Meadows, Syston, near Leicester. Class 12. For the best straw hive, the hive to be stocked with bees working, and the principle to be fully demonstrated—W. P. Meadows, second prize.

We may add that arrangements have been made for the Bee Tent to attend several local flower shows in the county of Nottingham, where liberal schedules of prizes have been provided for the various exhibits of bees, honey, hives, &c. (see Bee Tent Engagements).

The Rev. A. H. Halley (London Representative of N. B. K. A.) gave a lecture on bees and bee-keeping with diagrams—to the cottagers and others, about seventy being present—at Everton, Bawtry, Notts, on Friday, 26th June. It is hoped that the industry will be pushed forward, there being hardly any in that parish who take an interest in bees.

BUCKINGHAMSHIRE BEE-KEEPERS' ASSOCIATION.

A successful exhibition of Honey was held by this Association at Aylesbury, on Thursday July 9th, in connection with the Floral and Horticultural Society's Show. Although the entries were not very numerous, the actual quantity of honey exhibited was considerable, whilst its quality throughout was excellent. The judges were the Rev. E. Bartrum and Mr. T. W. Cowan, to whom the best thanks of the Association are due. The prize winners in Class 1. for section honey sent a splendid entry, especially the winner of the first prize (Mrs. Astley of Chequers Court), who exhibited thirty-six most perfect sections. The second prize exhibit, which consisted of fourteen sections, would have been more satisfactory had greater care been taken to exclude unfinished and imperfect sections. This greatly detracted from the general excellence of the remainder. The third prize was won by a level and exceedingly good exhibit of thirty-six sections, which well deserved the prize awarded to it.

The extracted honey was on the whole good, although the exhibitors seem as yet hardly to have learnt to send it before the judges in its clearest state, free from air-bubbles. The first prize for non-sectional super, was won by an excellent Stewarton super, exhibited by Mr. F. Freeman of Wendover. On the whole the exhibition seems to point to progress having been made in apiculture during the past year in the neighbourhood. Many of the exhibitors were new members of the Association, whilst the first prize for comb honey was carried off by a member who has lately adopted the improved methods under the skilful direction of the District Local Adviser (Mr. P. Brisker). The general public seemed much interested in the Honey Department, and there were numerous inquiries as to the methods of using the hives and appliances exhibited by Mr. Stonhill, the expert of the Association.

The prize-winners were—

1. (Sections).—1, Mrs. Astley, Chequers Court; 2, Mr. Freeman, Wendover; 3rd, Mr. Brisker, Ellesborough. Highly commended, Mrs. Murray, Little Kemble. Commended, Mr. Summerfield, Aylesbury; Commended, Mr. R. A. Abbot, Aylesbury.

2. (Extracted).—1, Mr. F. Freeman, Wendover; 2, Mr. S. Bagshaw, Aylesbury; 3rd, Mr. D. Norris, Dunsmore. Highly commended, Mr. P. Brisker, Ellesborough.

3. (Non-sectional Super).—1, Mr. Freeman, Wendover; 2nd, Mr. H. Broad, Aylesbury.

4. (Largest Exhibit of Comb Honey).—Mr. Freeman, Wendover.

HANTS AND ISLE OF WIGHT BEE-KEEPERS' ASSOCIATION.

The first show of the season held by this Association occurred at Southampton, June 23, 24, 25, and 26, 1885, in connexion with the annual meeting and Exhibition of the Royal Counties Agricultural Society. Although so early in the year, a very fine display of honey was secured, the entries in the various classes exceeding 100. The classes for honey in sections were very full, and the quantity and finish excellent, testifying to the good season bee-keepers are enjoying this year. Extracted honey also was well represented, exhibits coming from all parts of the county, and varying in colour from a transparent white through every shade of golden yellow to a rich ruby red. In the hive and appliances classes there was not much competition, which was singular seeing what a large field is open to hive-dealers in a wealthy county like Hants. Only two dealers attended, one of whom is declining business, and yet orders were booked exceeding 50*l.*, and beyond question this might have been largely exceeded.

Mr. C. N. Abbott came from London to represent the B. B. K. A. as examiner and judge, and he was assisted by Messrs. Beckford, Blake, and Tee. Seven candidates presented themselves for examination in bee-lore, but, owing to a misunderstanding as to the somewhat stringent requirements of the B. B. K. A. (which under the circumstances appeared scarcely necessary to the members of the Hants committee), only five were enabled to compete.

The bee-tent was under the charge of Mr. Bellairs, the hon. sec., who was assisted by Dr. Andrews on the the first day, Rev. H. W. Bull on the second, Dr. Blake on the third, and Commander Suckling, R.N., throughout the show. The popularity of this branch of the work of the Hants B. K. A. exhibits no slackening, the tent at times being thronged eight and ten persons deep, men crowding on each other's backs, and taking possession of every available empty packing-case whereon to gain vantage ground to see the manipulations and listen to the lectures. A pleasant feature was the marked respect and interest evinced throughout, and the numerous thanks for the knowledge and information so freely given.

We give below a list of the judges' awards, and in alluding to novelties, we must not omit to mention the exhibit of the Patent Tin Box Co. of Kirby Street, Hatton Garden, E.C. They had sent down a consignment of tin boxes or cans with thin patent lids, to hold about a gallon of honey. These were sold at sixpence each, and will probably prove of great value to bee-keepers for storing and ripening honey. There was also a large exhibit of honey in these tins made to hold two pounds each, and from their extreme portability these found rapid sale at good prices. A novel feature in the home-made hive class also was Captain Suckling's extremely well-built frame-hive, having for its crest or front the well-known brand of 'Moet & Chandon,' which deservedly took first prize. The awards for the best 12 lbs. of super-honey, in sections not exceeding 2 lbs. each.—1st, G. Horner, Swanmore; 2nd, W. Woodley, Newbury; 3rd, F. G. Ayling, Privett. Ditto, not exceeding 1 lb.—1st, Rev. P. P. Izard, Morestead; 2nd, F. Thirlby, Romsey; 3rd, W. Woodley. Ditto, cottagers and artisans only.—1st, W. Woodley; 2nd, J. Giles, Cowesfield. Best 12 lbs. of extracted honey, in vessels not exceeding 2 lbs. each, members only.—1st, Mrs. Best, Red Rice; 2nd, E. M. Hart, Longstock; 3rd, Mr. F. T. Beckford, Winchester. Largest and best exhibit of last season's honey, members only.—1st, Mr. E. H. Bellairs, Christchurch; 2nd, Dr. Blake, Bournemouth; 3rd, Mrs. Beck, Red Rice, Andover. Largest and best exhibit of honey in every form, members only.—1st, Mr. Bellairs; 2nd, T. Giles; 3rd, Hart and Co., Longstock. Best and strongest skep of bees, not being a swarm of this year.—1st, Mrs. Shears, West End; 2nd, Mr. E. H. Bellairs. Best sample of bees 1st, W. Woodley; 2nd, H. Puzey, Faringdon, Alton; 3rd, G. Holley, Sherfield, Basingstoke. Largest and best collection of hives and appliances, open.—E. M. Hart and Co., Stockbridge. Best bar-frame hive.—1st, Geo. Forward; 2nd, E. M. Hart and Co. Best cottager's hive.—1st, Forward; 2nd, Hart and Co. Best cottager's hive, the work of an amateur, members only.—1st, Capt. Suckling, Romsey; 2nd, F. G. Ayling, Privett, Alton.

THE HERTFORDSHIRE ASSOCIATION.

The Rev. J. Lingen Seager, the Hon. Secretary of the above Association, is to be congratulated upon the success which has attended his efforts in urging the importance of the various Societies, both agricultural and horticultural in the county, to make bee-keeping a part of their annual exhibitions. Honey and appliances formed part of the Herts Agricultural Society's Show held at Hatfield on the 9th inst. Fifty entries were made: the majority of the exhibits were of excellent quality, the 1-lb. and 2-lb. sections exhibited by Miss Gayton being unusually good. Another lady bee-keeper (Mrs. Maynard) was a very successful exhibitor. Prizes were awarded to Messrs. Godman and Dickens for collections of appliances.

A similar exhibition will be held in connexion with the Frogmore Cottage Garden Show to be held at Hedges, the residence of Frank Silvester, Esq., near St. Albans, on the 29th inst. The Rev. Lingen Seager will attend this Exhibition and deliver addresses on bee-keeping during the afternoon. An exhibition of hives and honey will also be held in connexion with the Potter's Bar Horticultural Society at Northaw House on Thursday, July 30. Schedules to be had of Mr. Huckle.

MIDDLESEX BEE-KEEPERS' ASSOCIATION.

The Annual Show of the above Association was held in connexion with the Ealing, Acton, and Hanwell Horticultural Show on Tuesday and Wednesday, July 7 and 8, in the magnificent grounds of Baron de Rothschild at Gunnersbury. An exhibition of hives and appliances was shown in the bee-tent by Messrs. Abbott Bros., with some specimens of honey. Manipulations of bees took place in the live-bee tent, under the superintendence of the hon. sec., Mr. Fox Kenworthy. The Rev. V. H. Moyle gave frequent lectures on Tuesday, and Mr. F. Lyon on Wednesday. The weather was very fine, and the Show may be considered to have been a great success.

THE BEE SHOW AT CORK.

The exhibition of bees, honey, and apiarian apparatus, was held in a special tent in the centre of the lower show yard. As usual, a number of visitors was attracted to what is necessarily a very interesting exhibition. In addition to the exhibits which were exposed in competition for the prizes offered, there was a bee-driving competition, in which was demonstrated the marvellous training to which these useful insects are capable of being subjected under the care of skilful persons. The apparently careless manner in which the operators handled the bees and hives, and the successful manner in which the bee-driving was performed, were the subject of much admiration. The driving competition took place at half-past one, when one of the competitors captured the queen-bee and exhibited her to the spectators, the prize being consequently awarded to him. At half-past two, Dr. Knight, of the Royal University, Dublin, delivered an interesting lecture upon the management of bees and the most successful methods for their

treatment. The lecturer illustrated his discourse by a bar-frame hive exhibited by Mr. Taylor, of Tinahely, and an observatory hive exhibited by Mr. J. J. Smith, Rathcoursey. Dr. Knight explained the use of the hives and the manner of manipulating the bees in a most instructive fashion. He was assisted by Mr. Traynor, of Tinahely, who acted as expert. The prizes for packages of honey were borne off by the product of a Ligurian hive, the honey from our native black bees taking second place. The Ligurian article bore undoubted marks of superiority, but as an endurable and merchantable delicacy the Irish honey would be preferred by many.—*Communicated.*

Lecture on Bee-keeping.—On Tuesday, the 23rd June, the Rev. A. H. Halley, Hon. District Secretary of the Middlesex B. K. A., gave an interesting lecture (with British Bee-keepers' Association diagrams) on bees and bee-keeping to about forty persons at Heage, Derbyshire, under the presidency of the Rev. H. M. Mosse, rector of Heage. Many present gave their experience of bee-keeping in their immediate neighbourhood.

Death from the Sting of a Bee.—Mr. W. H. Blanchard, ironmonger, of Poole, died on the 9th inst. from the effects of the sting of a bee. It appears that while walking in his garden about a fortnight ago a bee stung him in the neck, which commenced swelling shortly afterwards; and, notwithstanding that medical advice was called in, he died after much suffering.

An Early Swarm.—On Midsummer morning before seven o'clock I had a large swarm of bees come out of a box. I hived them all right, and in the evening I took them ten miles by train and put them in a friend's apiary. Is it not unusual so early a swarm?—Robt. Oxborrow, *Lower Kirby, Essex, June 23, 1885.*

Loss of a Swarm of Ligurians.—On Thursday, the 2nd inst., a very fine swarm of Ligurian bees left my apiary and headed towards Highgate. They had been successfully hived (in my absence from home) two days previously in a skep, but were lost in trying to transfer them into a bar-frame hive. This sort of thing has been rather common with bees this year. If any one has found them kindly write to the Rev. A. H. Halley, 8 Pymmes Villas, Upper Edmonton, N.

Bees in the Streets of London.—Considerable excitement was caused on Saturday, the 11th inst., by the appearance of a swarm of bees in Argyle Street, Regent Street. They clustered underneath a van. Mr. Neighbour was sent for, but, by the time he arrived, the bees had passed a bad quarter of an hour, and had been soused with water and knocked down with caps and coats by the boys. Thus they had become so dispersed that they could not be secured. For some hours the neighbouring streets were pervaded by the homeless wanderers, greatly to the discomfiture of the cabbies and coachmen and the amusement of the boys, who chased the unfortunates with their caps, the bees being too much demoralised to resent their attacks.—F. L.

Another correspondent writes: At about 11 o'clock this morning (Saturday, July 11th), while a man was walking down Argyle Street, Oxford Street, a queen-bee settled on his coat, and he was soon covered by a swarm of bees. He rushed into Oxford Street, the bees still clinging to him, and up Market Street, Oxford Street, where he shook his coat, and soon all the shops round were full of bees, but they all came back to him; at last he threw off his coat and hat, and then they left him. He is an assistant at Messrs. Mappin and Webb, Oxford Street. A boy is said to have been carrying a swarm of bees in a box, when he dropped it, and they then settled on the man. The man was only stung twice.—H. B.

Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of May, 1885, amounted to 996*l.* [From a private Return sent by the Principal, Statistical Department, H.M. Customs, to E. H. Bellairs, Wingfield, Christchurch.]

HOW TO UTILISE QUEENS SENT BY LETTER-POST TO INDIA.

Experiments Suggested.

Parties in India who would like to order queens by mail may hesitate, not knowing what can be done with a queen accompanied only by a score of workers. Having had some experience with several races of bees in Ceylon and Farther India, I may, perhaps, be able to offer a few suggestions which may aid them.

Secure several drone combs of the common Ceylon bee (Melesa or Apis Indica), which builds in hollow trees or in rock crevices, and fit them into frames; then transfer a stock of Apis Indica which has brood in all stages; remove the queen and cage (in a pipe-cover cage), the foreign queen to be introduced, placing the drone-combs near the centre of the hive.

The new queen should be caged three or four days at least, and over cells of sealed honey; also she should have in the cage with her six or eight of the workers sent with her. The cage should be examined every day, and at least once during the confinement of the queen it should be lifted up and shoved to a new spot on the comb. Also great care must be taken that the bees do not gnaw through and release the queen prematurely. If the pipe-cover cage be not pressed in beyond the centre or mid-rib of the comb, and the adjoining comb be placed close enough so as to press on the end of the cage which projects, there will be no danger on this score. On the third or fourth day, about sunset, the queen can be released provided the bees do not seem to be clustered compactly over the cage trying to sting her through it, and provided the queen-cells, if any were formed, have been destroyed a few hours beforehand by the bee-keeper. At the time the queen is released, honey made a little thin with water should be drizzled over the combs and bees, and the queen daubed with it. The hive is then to be covered and not opened for several days, bees being meanwhile permitted to fly in and out. Another precaution: make the entrances of the hives just as low as possible, and still let the small Apis Indica workers pass in and out. If then the bees swarm out, the queen (Apis Mellifica) cannot go with them.

The queen will lay worker eggs in the drone-comb of Apis Indica, and in a month or so the Apis Mellifica progeny will want to fly, whereupon the entrances must be made $\frac{3}{8}$ of an inch in height. There will not be danger of stocks of any variety of Apis Mellifica decamping as will the ordinary bees of Ceylon. The only danger would be that the Ceylon bees might lead off the new queen during the first month of her stay in the hive.

Another plan would be to use Apis dorsata combs, paring them down equally on each side until some of them were $\frac{3}{4}$ of an inch thick and others $1\frac{1}{4}$ inches. Apis dorsata builds but one size of hexagonal cells, and they are somewhat larger than the worker-cells of Apis mellifica, but smaller than drone-cells of this species.

I would try Apis dorsata workers with their own combs pared down and then with drone-combs of Apis Indica: also would try Apis Indica workers with Apis dorsata combs as well as their own combs. In all these experiments it would likewise be well to employ some sheets of ordinary worker-comb foundation. I speak of these plans as experiments, so I shall have to add that I have executed most of them with success; only I did not risk introducing any of the Cyprian queens I took with me to Ceylon in 1881 to any of the native bees. But I have great confidence in the success of the first procedure I have detailed.

I would recommend Carniolan bees in preference to Italians, but for India I believe Cyprians would be far preferable, being better adapted to a hot climate. They are sensitive, hence easily irritated by rough treatment, but if handled gently can be got along with more ease than any other bees of the yellow varieties. Carniolans are the gentlest bees known, equalling the Italians in working qualities and in point of beauty.—FRANK BENTON, *Munich, Germany.*

EFFECTS OF STINGS.

Last evening, at the outset of the operation of removing some sections from one of my hives, I received a sting on my left wrist, owing to the coat-sleeve having risen above some too-short-topped gloves I was wearing. The sting was at once carefully withdrawn, and I proceeded with my work, avoiding any rubbing or pressing on the wound. In less than half an hour I became conscious that my feet had grown too large for my shoes, and that my upper lip had swollen and become rigid, and from the feeling that I had, that I should be much more comfortable than I was could I be wholly divested of my clothing. I suppose the process of expansion must have gone on 'from top to toe.' In less than another half-hour a violent irritation had taken possession of my whole body, resembling, I may say, what I should suppose would be the result did one in a state of nudity fall headlong into a bed of stinging nettles: and it was with difficulty that I could withhold my finger-, and even my thumb-nails, from perpetrating dermatic abrasions on every part of my body. In a little time, on this there supervened a bodily agitation, which I could not control, the action of the heart being much quickened, and there being also a very threatening sensation of sickness. This stage of progress was succeeded by frequently recurring incipient cramp in the legs, which by brisk walking about I could with difficulty prevent reaching its most painful degree of tension. These pleasant experiences were parts of the sweets of my honey-taking for between three and four hours, at the expiration of which time I became nearly myself, except that the irritation to some extent remained, and except also that 'Tir'd Nature's sweet restorer, balmy sleep,' would have nothing whatever to do with me that night; and so left me the more leisure to ask you if you will be kind enough to let your other readers and myself know whether these are *common* results of bee-stings, and whether, if they are, when the wound has been once inflicted, there are any certain means of staving them off. I am the more interested in the reply that can be given to these questions, having last year gone through precisely the same process as that I have now detailed to you from a sting in my left whisker.

The virulence of the poison, that from so small a quantity can in so short a time so affect the whole mass of the blood, as in my case it apparently does, is something marvellous.—B. D.

[The symptoms which you so graphically describe are, fortunately for bee-keepers, not very common. It is known in medical language as *Urticaria*, or nettle-rash, and often follows from eating shell-fish, cucumber, mushrooms, &c., as well as from taking medicines like nux vomica, turpentine, &c. It is also caused by the bites of insects like gnats, or, as in your case, by the sting of a bee. We should advise you to try carbolic acid (see *Journal*, July 1, page 216), but it must be applied at once. If, however, this is not done, or if in spite of it the nettle-rash appears, sponge the parts affected with the following lotion:—

℞ Glycerini	...	...	...	...	...	ʒi
Liq. Plumbi Subacet.				...	...	ʒii
Sp. Rect.	...	...	...	...	...	ʒiv
Aquæ ad.	...	...	...	...	...	ʒviii

ED.]

EASTERN BEES.

A correspondent wishes for some intelligence respecting Eastern bees. I have kept Palestine or Holy Lands since 1882, and will endeavour to give my opinion and some of their characteristics. They are a handsome variety, very excitable, and if not carefully handled are irritable, and soon show their tempers, but with ordinary treatment one need not fear their stings. They are most prolific, and first-class honey-gatherers. It is stated by an authority that they are bad in wintering. I have found them very good in this respect, seldom require feeding in the autumn, breed late in the season, and commence early in the spring. Rear but few drones, but when queenless any number of queen-cells. Ligurians in comparison with them are like sleepy flies, and have 'no go' in them. To an experienced bee-keeper I would recommend him to give them a trial, but to a beginner I would not till he has gained some experience with the common variety. Smoke at times appears to have no effect on them. I should then advise trying a little carbolic acid—just use a feather that has been dipped in the acid, and rub it on top of frames. I have found a slight smell of this frightens them more than volumes of smoke.—E. W., *Abbotsley, St. Neot's.*

CURE OF FOUL BROOD.

One of my seven stocks of bees, a last summer's swarm, in the early spring was very strong and thriving; but towards the end of April the bees suddenly became as it were lazy and sluggish, and on examining the hive found the combs sprinkled with diseased cells. On opening a few of them I was convinced of the presence of the well-known and much-dreaded pestilence *Bacillus alvei*, or foul brood. This time, however, I did not destroy the combs, as I had done in former years, but resolved to give a trial to the Cheshire Cure. I purchased a bottle from Mr. Hollands, and treated the bees according to the directions sent with the bottle; and, strange to say, after two doses were administered the bees commenced to work with their former energy. I kept the bottle with the medicated syrup on for about a month, and from the hive in question I had a swarm which weighed over five pounds, and now I find the combs clean and perfectly cured; and I beg through your *Journal* to give the best and due thanks to Mr. Cheshire for his invaluable discovery.—VALERIAN NOVITZKI, *Pitlochry, July 6.*

COUNTY ASSOCIATIONS.

As your correspondents 'Leicesterian' and 'West Midland' ask for suggestions for making County Associations more useful to members I venture to offer a few hints on the subject.

I belong to an Association that is not embarrassed by having to lay out 108*l.* per annum—less than one-third of that sum would be nearer the mark; and yet we have our expert, and most of our members are satisfied with our proceedings; I say most, for there will always be a few grumblers. First, then, save your members as far as

possible those very charges referred to. If a member wants a pound of foundation, a few bottles or any other little matter, we know what an affair it is to find out where to obtain them, to write a letter and get a postal order: then there is a charge for a box and the carriage, and the thing becomes too irksome. Let your correspondents help their secretary in carrying out such an arrangement as this, which, having tried, I have found to be practicable, with very little trouble. We get early in the year from an eminent maker (whose name it would be invidious to mention) a list of quotations: but to those whom he knows he sends a special quotation for large quantities *for cash with order*. If enough is ordered it is sent carriage free; this to a member ordering, say, five lbs. foundation, would save his annual subscription, package, and carriage. At our annual meeting in January when members assemble in numbers to draw the hive, we inform them the price of supplies, take their order and their cash (no credit). If the supplies come to the county town, or some other easily reached centre, they can be called for when members happen to come in. There is no risk and not too much trouble. Bottles later on are managed in the same way, and the members save an infinity of perplexity, for which they show ample gratitude, as my vases of roses and honeysuckle testify.

Next, in the working of our Association, we thankfully accept the generous offer of some of our members to drive the expert round their neighbourhood, so that his spring visit has only cost us about 5*l*. His charge being 5*s*. per day and moderate travelling expenses, I cannot see any difficulty which may not be overcome by a little energy and co-operation.—A County Member.

SUGGESTIONS FOR COUNTY ASSOCIATIONS.

I am pleased, and my friends also, that some one has at last taken up the sword to fight the question of the utility of County Associations—their help(?) to cottagers at the present time, when every penny must be put to a proper use. I quite concur with what 'West Midland' said in your last publication; but he has been more lucky even than I have, for I have never seen the *Bee Journal*, or any other paper or book in connexion with bee-culture, at the expense of the Society to which I belong. At a lecture given by our Hon. Sec., not so many months ago, we were promised some advantages for joining the Society. But besides having had the expert's spring and autumn visits, we have gained materially nothing. With respect to sending honey to shows, that was so ably dealt with by your last correspondent on the subject that it needs no further comment from me, so I will leave it for our committee to digest, and by the time the next annual meeting takes place I hope they will be in a position to provide the local Secretary with certain things for our use. An extractor is costly, and I for one, with only a few hives to extract from, could not afford to buy one; at least, my returns would not justify me in so laying out my money. The local Secretary might also have a small library of bee literature to be at the disposal of the members; but then I am told that the books and the extractor, if given us, would be always out. That is a farce, because the time of use could be limited, and a fine levied if the things were not returned in a certain time. How do extensive lending libraries manage? Why, if they did not have rules and regulations, they would be nowhere, any more than we should. I say it can be done, and I believe that the number of members in a few weeks after such a course had been adopted would fully justify it. I am certain it would where I am located, for I was only talking to two gentlemen last week—enthusiasts in bee-keeping—who told me they would join us directly I could offer them one material advantage. Notwithstanding the extra number of members that might be got, I see no reason why something should not be done for present members, for dissatisfaction is spreading on all hands. Something must be done, but I will trespass no further on the space of our valuable medium—the *British Bee Journal*. I hope something may be carried out expediently to make County Associations more valuable.—Borg.

[If our correspondent would carefully read over the letter that precedes his he would find in it several useful suggestions for the economical conduct of Associations, especially that portion where he requests 'correspondents to help their secretary.'—Ed.]

MY EXPERIENCES WITH DRIVEN BEES.

In a recent issue, when speaking of the value of certain plants for bee forage, I promised to give to the readers of the *Journal* my experiences and results with condemned bees: and as the time is at hand when bee-driving will be the order of the day with advanced bee-keepers, these observations may interest some of our amateur bee-keepers who would like to drive and rear some condemned stocks.

It is now just about twelve months since I fell into conversation with a cottager respecting bees and bee-keeping. After a deal of conversation and arguing I obtained permission to drive two of his stocks and to have them for my trouble in doing so. I performed the operation one evening in the second week in August, brought them home, and united them the next morning, putting them in a straw skep, and commenced to feed with syrup. As it happened to be a favourable latter end the bees worked well, and fought well too, both with robbers and wasps, though they had not much to be robbed of, which may have accounted for them defending it so well. They were masters of all comers, as under the floor-board could testify, as there was a heap both of slaughtered bees and wasps. When I examined them at the end of October they had half filled the hive with combs and these last with honey. I had ceased to feed when I examined them, and had given them in all about three shillings worth of sugar; but I had a quantity of good forage plants to pick at, among which were the bee larkspurs, the red-hot poker plants, honey balsams, French honeysuckles, which were then in bloom the second time, as that plant breaks out after blooming the first time and flowers again a month or so later on. I placed a little candy on the floor as far back in the hive as possible, and with a little misgiving saw them go to rest for the winter. They were very active during the winter, and on mild days I poked through the entrance pieces of candy. As February advanced the weather was rather mild, and on the 17th of that month I saw them bringing in pollen, indicating that all was right. I commenced to feed with syrup on the 1st of March, and had a good supply of early flowers for them, which they made great use of. I expected an early swarm, but very bad changeable weather set in, and I had to feed well to save them from starving. However, on the 12th of June I had a nice swarm from them, which has done very well, filling a straw skep which has now got about a twelve-pound super on. Sixteen days afterwards I had a grand cast from the stock hive; these I put into a bar-framed hive with eight frames, containing small starters of comb in them, all of which they have built out and are going on very well.

Now that I have given my experiences I will ask your readers whether the results are not well worth the trouble and cost. Briefly the results are these. The stock-hive and the swarm well filled and rich in stores with supers upon both of them; a bar-framed hive with eight frames partly worked out, and containing one of the finest queens I ever saw. The total cost of sugar was about 5*s*. 6*d*. I would recommend bees to be driven not later than the last week in July.—W. Hollins, *Tillington Avenue, Stafford.*

A SUGGESTION: ENAMEL PAPER *v.* ENAMEL CLOTH.

I have been trying enamel paper instead of enamel cloth, and am very much pleased with it. As I use it for other things, I buy it in large quantities at 23*s.* per cwt. from J. A. Turner & Co., West Gorton, near Manchester. I think if other bee-keepers buy it and like it, some of our hive-makers might supply it retail; it comes much cheaper than cloth. I forward sample herewith.—R. H. Cowell, *Greenfield, near Oldham.*

HINGES FOR HIVES.

Seeing that hinges for the covers of hives have of late been frequently referred to in the *Bee Journal*, I would recommend all who purpose using them to be careful to weight or otherwise secure the reverse end to that on which hinges may be fixed. About a month ago I had occasion to be manipulating with a hive of bees, fitted with hinged cover, and whilst in the middle of my work, the whole box of tricks turned end uppermost, breaking two or three well-formed frames of comb and otherwise upsetting the equilibrium of the whole colony. The bees were a good bit mixed over the performance, as was also the manipulator, who since then has followed the old and well-known maxim—a preventative is better than a cure.—S. Cross, *Gas Works, Aberyavenny.*

DO QUEENS ORIGINATE FOUL BROOD?

My apiary has, during the last twelve months, suffered much from foul brood. It originated, as far as I could judge, in one stock which, in the course of twelve months, dwindled down to a few workers and their queen, and a few weeks ago the final collapse came, the hive was void of life, and the queen was found dead near the entrance. Her body was sent for a 'post-mortem,' and it was found to be full of 'bacillus alvei.' This queen was an imported Italian, introduced into the hive in the summer of 1883. My object in recording these facts is to ask our scientific friends whether in their opinion the 'Foul Brood' was introduced into my apiary by this foreign princess.—Henry Bligh, *Hampton Hill Vicarage, June 27th.*

SUGAR-FEEDER.

From the very good suggestion of Mr. E. H. Bellairs on page 187 respecting the bottle being used as a sugar-feeder, I have tried a modification which answers exceedingly well, and will prove a useful addition to the Simmins feeder.

It consists of a piece of zinc 8 inches × 5, with perforations that bees can pass freely. A rim of wood 1 inch high and ¼ inch thick is nailed on the edge. The feeder is filled with sugar pressed down tight and placed on the frames under quilt.

In the spring a colony has to be at least moderately strong before it will use the side feeder, but with the sugar above and close to them it is taken freely.

The size can be altered to suit the ideas of the user. It is cheap, compact, can easily be refilled, and does away with spoiling the quilt by cutting it.—J. C. Lambert, *Sunk Island, Hull.*

SEXUAL FUNCTIONS OF QUEENS, DRONES, AND WORKER BEES.

Having found, within the last year or so, articles by two or three different apiarists expressive of disbelief in 'parthenogenesis,' together with some reasons, which would apparently justify the same, I have considered the subject not a little. I may be pardoned for not attaching much importance or weight to the observations of the average American apiarist, because I know that if it is not a question of dollars and cents, the average American does not trouble himself much about new discoveries, the knowledge of which is apparently of no practical use to anybody. For this reason it has seemed to me that observations to establish new discoveries were not thorough enough to accept them as proven facts.

Let us consider proven facts first: The queen is the female bee, the drone the male bee, and the worker is a stunted female bee. To produce the worker, the queen must mate, or be fertilised; if she does not, the eggs which she may lay hatch drones. It has been proven by microscopical investigations made by Professors Siebold and Leuckart, and Rev. Schoenfeld, that eggs laid in worker-comb by a queen mated in the regular way contained from two to five of the seminal filaments. These eggs were examined as soon as deposited, and the sperm-cells or seminal filaments were always found within the eggs and not on the outside. Enough eggs have been examined to establish this as a fact. Consequently, to assume that the workers change the sex of the egg, on the supposition that the sperm filaments adhere to the outside of the egg from which they may be easily removed, is contradictory to perfectly reliable authority, which has verified the opposite by ocular demonstration.

The same scientists have also proven by ocular demonstration that freshly-deposited eggs laid by a mated queen in drone-cells, or those laid by a queen not having mated, as also those laid by workers, are devoid of these sperm filaments. Now, as one and the same fertilised queen has been used by these scientists to obtain both kinds of eggs which she deposited while being watched in an observatory hive, I think that we are justified in believing that such exact work by such close observers and investigators precludes all chances of error, as far as their investigations extended, which was to demonstrate the true sexual relation of queen, drone, and worker, and to show why eggs laid by the same queen should hatch workers or drones.

As a natural consequence, it has been assumed that it is voluntary with the queen to either impregnate the eggs that she deposits, or not. This assumption is supported by the observations above stated, but does not, of course, admit of ocular demonstration. Well, this much we know of queen and drone. The workers, on account of their number, have escaped individual observation. Those which were dissected proved sufficiently that they are stunted females.

The next problem was to discover what caused their being stunted. It has been found that it is the difference in food which has the effect to more or less develope the individual bee, and produce either a worker on a diet of honey and pollen, or a queen on a diet consisting of the secretion of the salivary glands situated in the heads of the young worker bees; this secretion is what is known as royal jelly. I may also remark here that in old bees these glands dwindle or shrivel to such an extent that secretion is entirely suspended: this makes it apparent why mainly young bees should be employed to rear queens, and then the same bees not more than once, as their salivary glands, once exhausted, cannot resume their functions afterwards; hence they are not fit, because unable, to rear a good queen. But even if they can not or do not rear a queen, the desire to preserve their existence as a colony is generally present, in consequence of which one or more workers begin to lay eggs.

It has been and still is a puzzle to the apiarist, how workers are fitted to assume the royal duty of depositing eggs. Many bee-keepers do not believe it, giving as a reason that they have not seen it; still it is a fact that they do lay eggs, but these eggs always hatch drones. To entertain the idea that such a worker could or would be fertilised by a drone was considered so far from the probable that no bee-keeper ever mentioned it as possible.

But a bee-keeper, by the name of Kremer, in Germany,

has made a remarkable discovery. He caught a worker and drone in the act of mating. When so caught they were still connected by their sexual organs, and thus sent to Rev. Schoenfeld, who, at present, is the keeper of the large microscope bought by the bee-keepers of Germany. After an examination of them he pronounced the worker to be not more nor less than any other worker-bee; a real, genuine worker it was, and not a stunted queen as was at first believed; nor were the sexual organs of this worker any more developed than any of the others which he had examined.

This discovery caused a great sensation among apiarists in Germany, as well it might. A writer in the *Illustrated Bienenzeitung* asks some questions which he partly answers, maintaining that the queen never lays any eggs which hatch drones, but that it is the business of the fertilised worker. Where that drone comes from, to do the first fertilising in the spring, he does not say. The following is a translation of the main points and answers which he submits: '1. May a worker be fertilised? According to Kremer's discovery and the investigation of the bees by Rev. Schoenfeld, the question must be answered in the affirmative. 2. Had the worker in question a desire to be mate? Certainly; otherwise the act would not have taken place, for a worker possesses the means to repel a drone in case the latter should want to enforce copulation. The observed fact is also proof conclusive that the stunted or smaller sexual organs of the workers admit of copulation. Microscopical investigation proved, also, that no part of the sexual organs of the said worker had been in any way injured or torn. Experience also proves that in a colony some workers are larger than others, and some drones are smaller than the average. 3. May such workers, in mating, become fertilised? Certainly; nature does nothing without an object. The object of mating is to fertilise. Have laying workers been observed? Experience says, Yes; especially in a queenless colony. 5. What did such eggs hatch? Only male bees or drones.'

The other points are of minor importance, in one of which he asserts that it has not been proven that queens ever lay eggs which hatch drones, which is contrary to facts; and he winds up by saying: 'A queen which is fertilised lays such eggs only, which hatch either perfect or stunted female bees, according to the food with which the larvæ are supplied. The less stunted and fertilised workers lay the eggs which hatch perfect male bees or drones.'—A. R. Koncke, *Youngstown, Ohio.* (*American Bee Journal.*)

SHOWS AND BEE-TENT ENGAGEMENTS.

Nottinghamshire.—July 21, Hucknal Torkard; 23, 24, 25, Notts Horticultural and Botanical Society, Mapperley Park; 28, Farnsfield; Aug. 3, Mansfield; 11, Willoughby-on-the-Wolds; 26, Retford; Sept. 2, Clarborough; 22, Radcliffe-on-Trent.

Worcestershire.—July 22, Redditch; 24, Upton-on-Severn; 28, Hagley; 30, Bricklehampton. Aug. 20, 21, Worcester.

Buckinghamshire.—July 23, Stony Stratford, entries close July 13; 28, Buckingham, entries close July 18. Aug. 3, Colnbrook, entries close July 24; 19, High Wycombe, entries close Aug. 10.

Essex.—July 16, Broomfield; 22, Easton Lodge, Dunmow; 23, Wimbish. Aug. 12, Harlow.

Lincolnshire.—July 30, 31, Grimsby.

Glamorganshire.—Aug. 5, 6, Neath.

Surrey.—Aug. 12, Lower Cheam House, Sutton.

Leicestershire.—July 29, 30, Market Harborough.

Shropshire.—Aug. 19, 20, Quarry, Shrewsbury.

Oxfordshire.—July 30, Wadham College, Oxford.

Kent.—July 29, Ashford.

Hampshire.—Aug. 1 & 3, Southampton.

Foreign.

SYRIA.

Bee Convention in Syria.—We had a bee convention in Syria, or rather we have been having a series of them recently. This may seem rather surprising news to people of the Western World, who suppose Syria is beyond the pale of civilisation. But, though the country is in many respects behind Europe and America, modern methods in bee-culture have now taken permanent root here. The gatherings have been quite informal in their nature, as close application of parliamentary rules in the conduct of such meetings is not the way of the country; moreover, of the seven or eight different languages represented by the members of the Convention, four had to be employed in the talks on bees, namely, English, French, German, and Arabic. Perhaps some of the friends in other countries, who find with but one official language in their Conventions it is still difficult to get on harmoniously will wonder what we could do with such a Babel of tongues. Nevertheless, we got on quite well, and the interchange of ideas will, no doubt, prove of great value to many of the participants. At one of the meetings, a president was unanimously elected, but he has not yet called anybody to order. Probably the most important work done by the Convention was the adoption of a standard of frame for Syria, to be known as the 'Syrian Standard Reversible Frame.' All bee-keepers in countries where several sizes of frame have come into use will comprehend at once the wisdom of such a step, while moveable-comb bee-keeping is yet in its infancy in these parts. The frame adopted measures $14\frac{3}{8}$ inches (=365 mm.) in length, and $8\frac{3}{4}$ inches (=223 mm.) in depth. All members of the Convention, which included two Americans, one Frenchman, one German, one Italian, and a number of Syrians, follow American methods altogether in their apiaries, if we except one, a Syrian peasant, who has but one frame-hive as yet, and for the present retains native hives—long cylinders, made of clay, or of wickerwork, and also earthen water-jars, into both sorts of which the bees are put after the receptacle has been laid on its side.

Among other topics which were discussed at our meetings, migratory bee-keeping (already largely practised here) and hives adapted to it received much attention; also in connexion with this, the various bee-ranges of the country were discussed. Orange-blossoms furnish the chief spring harvest, though almond, apricot, and other fruit blossoms are of importance; cactus plants supplement these, in fact, in many localities they form the chief early honey-yield. The late harvest comes in midsummer from wild thyme, which is abundant in most of the hilly and mountainous portions of the country; of course, there are also many minor sources—wild flowers, &c. It was agreed that where orange, cactus, and thyme blossoms, or even where orange and thyme blossoms, were abundant, with the usual minor yields, nothing would be gained by transporting bees to other pastures.

The wintering problem did not get much attention, since there is no difficulty on that score here; nor did we devote very much time to a discussion of the relative merits of the different races of bees, as none but Syrians are kept in Syria. The writer, however, and a member formerly in his employ in Cyprus, testified to the superiority of the Cyprians over the Syrians. No other members had had any experience with Cyprians.

Altogether a bee-convention in Syria may be considered an interesting and important event—interesting to the outside world, as showing the progress already made here, and that America has been taken as the model; important to the country itself, both because it is likely to spread greater interest in an industry which can be made to contribute much more than hereto-

fore to the welfare of Syria, and because the proceedings are likely to induce a more systematic development of the industry in the East.

The Convention adjourned to a photographer's, and the migratory shadows were committed to paper. As far as means will permit, copies of the same will be sent to the bee-journals.

Friend Root of *Gleanings* will surely take kindly to our president, who appears in the centre of the group with his hand resting on the *A B C* book. French bee-keepers will not be ashamed of their countryman, Mr. Philip Baldensperger, whose large honey-yields in Palestine have attracted attention, but have unfortunately been attributed to German methods, and even to German bee-keepers, by parties who knew better.* Messrs. Dennler & Zwilling, of Alsace-Lorraine, will recognise in his hand a copy of their journal. It so happens that this disciple of American bee-culture is flanked by Americans, for your humble servant, to whom the penning of these chronicles seems by common consent to have been left, stands at his other hand. The little block of wood with three holes in it, and the reversible frame with no attachments or projecting corners, will be recognised by some, anyway. A man of Italian origin stands on my left: he has never owned any bees, but was in my employ some time—in fact, I might say he has been *my left-hand man* for two or three years past. Still farther to the left, a Syrian schoolmaster, owner of ten hives, holds in his hand a copy of the *British Bee Journal*, yet, though he knows English and French, he is not a subscriber to, nor a reader of, any bee-journal, nor has he ever owned or read a book on bees. Perhaps this Syrian friend prefers the *name*, and not the *thing*. In front of him is a Syrian merchant—a former landlord of mine. The good-looking full-bearded man who stands at the left in the picture represents the sturdy German race, and says he is 'strongly interested in bees.' Next to him is a peasant friend with his daughter. The latter, who holds an earthen jar such as the peasants employ as hives, has had much to do with recent work in bee-culture here, for, on a tray placed on her head, she has brought down from distant villages of Mount Lebanon, in twos, many of the stocks of bees that have furnished the queens for customers in far-off Europe and America. The juveniles are represented by two rising bee-keepers, one of whom has evidently adopted the smoker, whilst the other has 'sat down' on the native cylinder hive.†

Our eyes are turned toward America for light in bee-keeping matters, and if the world hears of large reports from these shores of the Mediterranean, the credit of them will, it is to be hoped, go where it belongs.—FRANK BENTON, '*Mount Lebanon Apiary*,' *Beyrout, Syria, May* 1885.

FRANCE.

The *Bulletin de la Somme* reports that the Société d'Apiculture de la Somme has obtained a gold medal at the Concours Régional, held at Beauvais between the 30th May and the 7th of June last. In addition to this award, the President was complimented upon the active steps which this Society was taking for spreading a better knowledge of bee-culture in its district. It further appears, from the same contemporary, that the same Society was awarded a gold medal at a Horticultural and Apicultural Show held in the same town, whilst two silver gilt and five bronze medals were given to members of the same. The seventeenth general meeting of the members of this Society was held at the Town Hall of Amiens on Easter Monday last, during which Monsieur Rabache placed upon the table several extracts taken from English publications, among the most conspicuous of which was a translation of the lecture given by Mr. Cheshire at the Health Exhibition on the 25th of July last.

* See Howards and Alley's reports in *Gleanings* and the *American Bee Journal*. Also see editorial notes in the *Bienenzuechter* of Alsace-Loraine.

† The photograph described above has come safely to hand, and we beg to return our best thanks for the same. It is a great privilege to have the opportunity of scanning the features of those whose names have long been as 'household words' to us.—ED.

GLUCOSE AND PARAFFIN.—A short time ago I received a call from a polite Yankee, who began, 'Sir, do you handle glucose?' *Merchant*. 'No, we do not.' *Y*. 'You *should* handle it. A man in our city of Chicago does a rooren trade in it.' *M*. 'What does he do with it?' *Y*. 'Makes it into honey.' *M*. 'Where does he get his beeswax?' *Y*. 'Why he makes it out of paharin, of course!' *M*. 'We should not think that honest in this country, and the police would interfere.' *Y*. 'Oh, it's all right. Our buyer takes 60 barrls a-week of us, and if you handled the article you would do a rooren trade tu!' On this I politely ended the conversation.—R.

THE BUZZING OF INSECTS.—This topic has been again investigated by Mr. J. Pérez, who is led to conclude that, with the hymenoptera and diptera, the buzzing is due to two distinct causes: one, vibrations arising from the articulation of the wing—the true buzzing; the other, the agitation of the wings against the air, which modifies, more or less, the first. Some of the lepidoptera, of strong flight, such as the sphinxes, produce a soft buzzing by the agitation of the air by their wings. The libellulæ, the base of whose wings is furnished with soft and fleshy parts, do not effect a true buzzing, but only a simple whirring, due to the rustling of the organs of flight.—*The Science Monthly*.

Echoes from the Hives.

Bishop's Waltham, Hants.—After my letter of the 18th June we had wretched weather for the bees, hardly able to get out at all for a week; the last ten or eleven days, however, have been very fine and rare honey days, and my yield from one hive has been very good indeed; honey is still coming fast, but is not so clear as a week ago. Swarms have been plentiful hereabouts, but I am glad to say I have been able to prevent mine from swarming so far, and have so profited by having more honey. I have, however, lost a weak stock from robbing, which I cannot account for at all.—A HAMPSHIRE BEE-KEEPER.

Langrickville, Boston, July 6.—The present fine weather, with fields, and especially road-sides, white with clover, is causing the bees to be very busy. Preparing for, and two days at, Boston Show has caused my hives to become clogged, and the result many swarms—not wanted, having upwards of one hundred stocks. One swarm, during a visit of Rev. J. Booth, was purchased by him to stock a Stewarton hive; it weighed, I hear from him, six pounds.—R. THORPE.

North Leicestershire, July 9th.—Superb bee weather. Only one little shower since the 25th ult. Supers filling fast, and slinger already hard at work. A successful season is assured.—E. B.

NOTICES TO CORRESPONDENTS & INQUIRERS.

G. R. BARRETT.—*Drones.*—You did right in removing the excess of drones, and you can prevent any more hatching by shaving off the projecting tops of the brood with a knife and removing the greater part of the drone combs. These should never be allowed to exist in the centre of the hive. They are sometimes

useful for extracting purposes stored at the back of the hive. The swarm having worked out the ten frames of foundation should be supered at once.

NEMO.—*Condition of Hive.*—Your skep does not seem from your description to be doing so very badly. The weather has been so cold and unsettled in some parts of the country that that would account for little honey being seen. As to the combs being dark, they become dark by breeding in them in twelve months. The large amount of drones is caused by an undue amount of drone comb. This you will discard when transferring to your bar-frame hive. When you do so, you will learn more about it. Now is a good time to do it, as there will not be very much brood in it. If you find none and no eggs it is queenless. We should advise you not to drive in public until you have had a little more experience. The fanning at night goes to show a certain amount of prosperity.

ARTHUR FRYER.—1. *Queen not laying eggs.*—A queen not having laid eggs for fourteen days after hiving a swarm with virgin queen is not absolutely a proof that she is lost. (See leader in No. of July 1st.) 2. *Sealed Queen Cell.*—The sealed queen-cell in the skep eleven days after an after-swarm may be a fresh preparation for swarming, or may contain an abortive queen. 3. *Giving Queen-cell.*—You may give the queen-cell to your hive, and if it is queenless and the cell not abortive the bees will allow it to hatch. If there is a queen, even though unfertilised, it will be destroyed.

MRS. L.—1. *Time for Supering the Swarm taken on July 3rd.*—No; it would be useless to give the swarm a super before the end of the month, when the greater part of the bee-flora will be over in your district, as far as we remember it, there being no heather. 2. *Extracting.*—If all the frames are full of brood there would be little honey to extract, and that little should be left for the brood. Probably your frame-hive is too small. A hive should contain not less than twelve standard frames. You do not say whether your hive has been supered. If not, the fact of its being full of brood shows that it ought to have received supers. Where bees have sufficient room for storage above, and on the sides, there you will very rarely find brood, provided the central frames are sufficiently numerous for the brood-nest of a prolific queen. Do not extract at present. Wait, even until September, when you will find no brood in the outside frames.

R. SIGGERY, *Leatherhead.*—Queen as badly diseased as any I have yet seen. One ovary contained certainly millions of bacilli which swarm out into a tiny speck of water so as to crowd the field of the microscope.—F. C.

J. M. B., *Acklington.*—Not foul brood. Is not the queen old or out of condition; as I find workers in drone-cells and drones in worker-cells?—F. C.

G. S., *Chesterfield.*—The two workers and queen were all badly diseased. The latter, unlike any specimen I have previously had, was principally attacked in the spermatheca, the valve of which, very much larger than the average, possibly inflamed, was filtered, together with the spermatheca, with a dirty fluid swarming with bacilli, but not one spermatozoon could be found. This made the queen a drone breeder of course, but the reason of the disappearance of the spermatozoa can only be explained by conjecture. They may have died through disease and disintegrated, or through the diseased condition of the valve they may have passed away and been lost. Altogether the case is one of considerable interest, and so far to me unique. The number of diseased queens I have received has astonished me greatly. At first I thought such a one a *rara avis*, now they don't raise the rate of my pulse, and I hardly think most of them worth more than a partial dissection.—F. C.

T. T.—1. *Queen of a Second Swarm.*—No, the queen of a second swarm is not fertile when leading off the swarm. She generally meets the drone from two to six days afterwards, weather permitting. The young queen, introduced to your queenless swarm, will probably mate at once and commence to lay in a few days from mating. 2. *Time for Extracting.*—We advise you to wait a few days until the bees seal a part, at least, of the honey before extracting. If extracted in its present unripened state it will become acid and will not keep. 3. *Bees Biting.*—We never heard of bees 'biting' the bare arms, as you represent them doing. When running in numbers over the hands and arms they cause a tickling sensation by no means pleasant. That is all. The queen will use her mandibles for biting.

R. H. SEWELL.—1. *Dead Bees.*—The bees have evidently escaped, owing to the flannel covering not lying flat on the frames, and, being unable to find their way back, perished beneath the cover. This was not the season of the non-swarming of the colony. Probably its queen is less prolific than the other, from age or some other cause. It is not likely that the supered swarm will swarm again. 2. *Frames for Wintering.*—The number of frames for wintering depends upon the population of the hive. Usually about six or seven half filled with sealed honey. Extract the combs on both sides of the brood nest, and afterwards—later on in the season—feed with sugar syrup for winter store.

HUMANITY.—*Bees in a Tree.*—The only way of driving out the bees from the tree would be to inject smoke through a hole below the nest and drive them into a skep placed above. If, however, they have been in possession long enough to have built comb and raise brood it is doubtful whether they can be dislodged. It can only be done by a free use of smoke. Brown paper is the best material for this purpose, and it will be necessary to secure the queen. On the whole we are inclined to think, that except in the hands of an expert, the operation will fail.

ASCOT.—1. *Carbolic Acid Solution*, page 226.—Carbolic acid solution is used in lieu of smoke, as a bee-quieter. 2. *Carbolic acid*, page 216.—Yes. The solution relieves the pain arising from a sting and prevents swelling, but it requires care in application, or the 'remedy becomes worse than the disease.' 3. *Hatching of Queen-cell.*—The first swarm had been prevented from issuing by some cause or other—probably unsuitable weather—and it is likely that the emerging of the young queen from her cell was the exciting cause of the issuing of the swarm. This is not at all an uncommon occurrence. Indeed, under similar circumstances, the young queen will often accompany the swarm together with the old one.

J. K., *Ireland.*—*American Cloth.*—Yes. The specimen you send will answer well as a summer covering for hives. Place it, enamel-side downwards, with woollen quilt and crown-board above.

T. C. T.—1. Queries are not, as a rule, answered by post. 2. *Sections in Frames.*—The queen excluder should occupy the same place as the hive side or dummy would if the frames were against it, *i.e.*, close against the shoulders of the frames and the sections close up against the excluder. 3. *Crooked Combs.*—If the midribs are not straight, they must be straightened (see reply to H. G. B. in No. of July 1st, p. 227), but if you mean that the surface is irregular, they will be straightened if pared down level and put face to face. 4. Combs should be kept in a dry, airy place. 5. *Inverted Combs.*—The honey will be removed and deposited in supers.

H. A. P.—*Carbolic Acid.*—Carbolic acid, like all other powerful acids, is, no doubt, a 'strong poison,' and

requires care in use. As a bee-quieter 'Calvert's concentrated' is not at all suitable, and we have never recommended it. That which we have always used in our apiary, for the last twenty years, at least, and with the most satisfactory results, is the ordinary acid, sold by all chemists, and used for disinfecting purposes. The fluid is of a very dark colour, and the solution recommended, when well shaken, is of a brown colour similar to sherry, or pale brandy. Of course, if applied to honey-comb it will leave its powerful scent, but this should never be done. A quill, moistened with the solution, is simply passed over the top-bars of the frames on removing the quilt, and, while manipulating, this may be done repeatedly to keep the bees quiet. When brushing bees off combs, the quill should be wiped before applying it, and no scent will remain on the comb. So dreaded is it by the bees that a comb may be cleared of every bee in a few seconds. Used in moderation, we never knew any ill effects to follow, and we use it in all cases of manipulation, even for hiving swarms in the hottest weather, and no swarm has ever deserted its hive from the use of it.

J. H. J.—*Swarm from Stock eighteen days after artificially swarming.*—The time is about right, rather later than might have been expected. The old stock had not prepared to raise a queen until you swarmed from it, when they raised at least two, one of which led off the swarm (cast), and the other remains as queen in the stock. It is not likely to swarm again this season. *Absence of Drones.*—Your neighbour having a super-abundance would not account for your having none. You no doubt furnished your frames with full sheets of worker foundation, and no drone-comb has been built.

T. G. Spence.—*Treatment of skeps and bar-frames to receive no attention for two years.*—The plan you propose, viz. to break up the skeps, extract the honey, and transfer bees and best of combs to bar-frame hives, is as good as you can adopt. You would do best to place your bees in charge of some bee-keeper to attend to for you on mutual terms. Possibly, your county expert would look after them for you.

Miss Marsh.—*Treatment of skep which has been placed over a bar-frame hive.*—You had better do as you propose, open the entrance of the bar-frame hive and close that of the skep. Before doing so, we should drive the skep, put all the bees and the queen into the bar-frame, and shut off the skep by queen excluder. As the brood hatches, the cells will be filled with honey, and can be taken in autumn.

J. H. J.—*Supposed Queenlessness.*—The eggs which you saw on July 4th, then about five days old, would date back to June 30th, and might very easily be those of the young queen which led off the cast on June 16th, and which you returned. Young queens are so nimble and so shy that they often escape observation. 2. *Ripening honey by Solar Heat.*—Yes, you can do it. Of course, you will take great care to keep out robber bees.

A. J. S.—*Hearing of Bees.*—If we place any credit in Sir John Lubbock's experiments on the hearing powers of bees, we must come to the conclusion that bees do not hear. The tanging to induce a swarm to alight we have not much faith in; it is an old and time-honoured practice, known in the times of Aristotle, Varro, and Virgil, but it is not practised now except in some remote villages.

G. Best.—*Heather Honey.*—Heather honey is with difficulty extracted after it has been stored a short time. It sets in a few days, and ought, if extracted, to be operated on at once. Heather honey is generally eaten in the comb, and this is the proper way of dealing with it. In order to get the honey from the cells, cut them across, and afterwards chop them up into small pieces, put the pieces into a conical bag, and hang it before a fire; the honey will then exude. 2. *Smoker.*—We would suggest that you should communicate with the vendor.

B. *Erin.*—1. *Honey Dew.*—This is not actually poisonous, but it is not nice, and spoils the honey with which it is mixed. 2. *Drone Brood in Sections.*—If you allow them to hatch, films will be left in the cells, and the sections spoilt. Pull out the grubs before sealing, and the sections will be little the worse for their temporary presence. 3. *Bees visiting Oak-trees.*—They are certainly getting honey-dew which will spoil your honey. It is very provoking that they neglect lime-blossom for it, but you have no remedy.

A. Green.—*Condemned Bees.*—Refer to p. 274, Vol. XIII., and you will find the subject fully treated upon.

R. Siggery, *Leatherhead.*—Larvæ of queens as frequently die in their cells of bacillus disease as do those of workers. 'Foul-broody queen-cells' are, in badly infected hives, rather the rule than the exception. The cell sent me, however, has no evidence of disease, but shows that from some cause during the transference of the cell from one hive to the other the body of the larva was ruptured, and hence the failure to hatch.—F. C.

Carniolan.—*Retarded Hatching.*—Your explanation is doubtless correct, especially, as very likely, hardly sufficient bees were left in the stock to perfectly cover the eight frames.

J. T. M.—*Width of Top-bar.*—1. The Standard-frame Committee did not define the *width* of the top-bar, but merely its *thickness* $\frac{3}{8}$ in. Standard frames, however, are generally made with top-bar $\frac{7}{8}$ in. wide. We prefer, and always have used, top-bars one inch wide, which allow $\frac{1}{2}$ in. between combs, a space, we think, quite sufficient, and less productive of bulged combs than $\frac{3}{4}$ in., which is the space between combs when a top-bar of $\frac{7}{8}$ in. wide is used. We also advise you to try a 'bee-space' of $\frac{1}{4}$ in. only, between brood frames and sections; although we are troubled but little by comb-building between, when $\frac{3}{8}$ in. is allowed. 2. We are scarcely able to advise you respecting the queen, unless we knew her precise age. If purchased at the head of a *first* swarm in May, 1884, she must be over two years old, and, as a rule, the fecundity of a queen declines in her third year. The safest plan, therefore, would be to supersede her, but if she is very prolific, we should, were the case our own, allow her to remain until another year. 3. Italian *queens* and *drones* vary much in colour. We have daughters of the same imported mother of the brightest golden colour, dark almost as black queens, and others as beautifully marked with rings of gold and black as the queen hornet or wasp. The same rule applies to drones also. If the workers are all marked precisely similarly, with two, or, as some say, with three golden bands, you may consider the mother *pure*. If some have three, two, or one band only, or none at all, she is impurely fecundated, or 'cross-mated.' Queens mated in this country can never be thoroughly depended upon as being purely mated. Well-authenticated facts of drones mating with queens, when located at a distance of *seven miles*, are not wanting.

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THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

[No. 175. VOL. XIII.] AUGUST 1, 1885. [PUBLISHED FORTNIGHTLY.]

Editorial, Notices, &c.

THE EDITORSHIP OF THE *BRITISH BEE JOURNAL.*

Our readers will, we are assured, be pleased to receive the information that T. W. Cowan, Esq., of Horsham, having been requested to undertake the responsible duties of Editor of this *Journal*, has kindly acceded thereto. Bee-keepers will accept this announcement with satisfaction, feeling that in Mr. Cowan's hands their interests will be well secured, and that the *Journal* and the objects which it has been established to support will, under his direction, receive a fresh impulse from his extensive and practical knowledge.

Many converging circumstances in the past career of Mr. Cowan have indicated his suitability for the post of Editor. He has for many years occupied a prominent,—if not the most prominent, place among bee-keepers. As far back as the Crystal Palace Show, Mr. Cowan's exhibition of 700 lbs. of super honey from twelve hives drew the attention of the public, in a marked degree, to the productiveness of the honey bee; and in the following year he was able to show 120 lbs. in two supers from one hive—this result having been accomplished, as demonstrated by him in a letter to this *Journal*, by his plan of getting his stocks strong in the spring, selecting young queens, and judiciously spreading the brood. Mr. Cowan has given much attention to the construction of the hive; and his modification of the Woodbury and Stewarton hives has, in his hands, resulted in the 'Cowan' hive, a description of which will be found in his *Guide Book*. Bee-keepers are indebted to Mr. Cowan for the numerous forms he has introduced of the extractor; the most popular and best known of which are the Amateur, the Rapid, and the Automatic. Mr. Cowan is the author of *Wintering Bees*, of the *Bee-keepers' Note-book*, and of that most reliable and valuable manual, the *British Bee-keepers' Guide-book*. This work has met with a most surprising success. Though only published in the latter part of 1881, it has already passed through six editions, and upwards of ten thousand copies have been sold in less than four years. The work, too, has been translated into several European languages.

Mr. Cowan has served upon the Committee of the British Bee-keepers' Association since its foundation in 1874, and has been the chairman since 1878, the largest number of votes having been recorded in his favour at each successive election. In the county in which Mr. Cowan resides he has taken great interest in forming and sustaining the Sussex Bee-keepers' Association. Mr. Cowan's abilities as a judge have made his presence familiar at the principal shows in England and Scotland. From his long residence on the Continent, Mr. Cowan is intimately acquainted with the various methods adopted by French, Swiss, and German bee-keepers.

With such evidences of his scientific and practical knowledge of bee-keeping in its varied forms and phases, together with his sound judgment, his impartiality, his urbanity, and kindheartedness, it will be conceded by all that a more suitable selection could not have been made, and that the future utility of the *Journal*, and the prospects of apiculture, will gain much from the editorship being placed in the hands of Mr. Cowan.

BEE-KEEPING AND AGRICULTURE.

It is satisfactory to note that every year brings us clearer evidence that the two sciences of Agriculture and Apiculture are coming into closer approximation, and are becoming more mutually helpful of each other. Led on by the Royal Agricultural Society, the Lincolnshire, the Hertfordshire, the Glamorganshire, the Isle of Man, &c., have followed in its wake, and show their readiness to recognise bee-keeping as an important branch of agriculture. Owing to the increasing imports of corn from foreign countries, large districts of land have been thrown out of cultivation, but many of these are now being utilised as fruit-orchards; and as bees play a most important part in the fertilisation of fruits, clover and other seeds, it is found that the keeping of bees is a useful auxiliary to all fruit-farmers. And this not only for the purpose of improving the flowers and fruits, but also the results in the production of honey are found to be no slight incentive to the farmer to

include bee-keeping as a branch of horticulture and agriculture.

On instituting a comparison between bee-keeping and the other minor objects of farm-work, such as poultry-keeping, cheese-making, the dairy, &c., it is acknowledged that bees return a larger percentage of profit than anything else, and therefore we argue that a farmer should keep bees, and thus add to his income.

One great recommendation of bee-keeping to the farmer is that it can be managed by his wife or daughters. The results of the Preston Show have proved demonstratively that bee-keeping is a pursuit suitable for ladies, and clearly indicate the facility with which ladies residing in rural districts or in suburbs of towns might be enabled to make an addition to their incomes. At that show Miss Gayton took first prizes in every class in which she exhibited; and three ladies won nearly all the prizes for honey at Herts Agricultural Show.

The B. B. K. A., to whom is entrusted the Bee Department by the Royal Agricultural Society, use their best endeavours to make it instructive and interesting; and it was evident that the exertions of the Committee at the Preston Show were eminently successful, as during all the days the Department was thronged with an eager multitude of visitors, desirous of receiving instruction in the science. We consider that the arrangements of the Royal and the B. B. K. A. are susceptible of some improvements, and we desire to suggest that the prize list should be extended, and that the Department should be made more thoroughly representative of the bee-keeping industry of the country. If we institute a comparison between the eager multitudes who gladly embrace the opportunity of studying the bees at such a meeting as that held in Preston, and the languid spectators who visit the show when held in London, the contrast is very great. The former are anxious and earnest, and quickly appropriate what may prove of utility to them in their various professions; while the latter but too frequently treat a bee-keeping show as a portion of 'a Cockney holiday,' and speedily any impression that might be made at the time is swept away. We feel convinced that the future of bee-keeping is bound up with the success of agricultural societies, and that it is the duty of all those who have the interests of bee-keeping and the benefit of bee-keepers at heart to make the bee-keeping department of these Agricultural Societies as attractive and complete as possible.

COUNTY ASSOCIATIONS.

That all the County Associations are doing their work satisfactorily we are not prepared to state, but probably we shall be somewhere near the mark if we say that, where they are not efficient, it is the fault of the members themselves. If any considerable number of the members of an Association are determined that it shall do its work, they will soon find a way to make it do so, without airing their grievances in public, and putting their dirty linen out to wash.

In the reports of the various annual meetings how often do we read, 'there was a *fair* attendance,' or 'there was but a small number present,' and other expressions, which at least suggest that the number of members who take any interest in the elections or management of their Association is comparatively small. If no new blood is added to committees, or only persons who belong to a certain clique or district, the members have no one to blame but themselves. So, too, if we may judge from the reports which are sent to us, the opportunity which the annual meetings give for suggestions of improvements or proclamation of grievances is seldom made use of.

As a rule, we find that in those counties where the Association is working most satisfactorily it is because there is a large number of persons of various classes who interest themselves in the work, and are ready to help when asked. An institution of any kind which, after being fairly started, is not self-supporting, in every sense of the word, is seldom worth bolstering up; so, too, the success which depends on the efforts and energy of one man is but ephemeral, and must suddenly sooner or later come to an end.

During the last two or three years the work which the Hon. Sec. of a B. K. A. is called upon to do has so enormously increased that it becomes more and more difficult to find gentlemen who have both the necessary administrative ability and the leisure at their disposal; thus, in more cases than one, we know that gentlemen still are more or less obliged to hold on their offices, though acknowledging that they are unable to perform the duties, simply because a suitable successor cannot be found. Whilst undoubtedly the appointment of district secretaries has added much to the efficiency of some Associations, still the chief honorary secretaries have not, we believe, as a rule, found their work decreased by this system, but rather increased. We believe, too, that the appointment of honorary secretaries of equal position and responsibility for different parts of a county has not been found unattended by considerable disadvantages. What we would suggest is the appointment of *paid assistant secretaries*, a plan which was adopted some years ago in Herts by Mr. Peel, and is still carried on there successfully. By such an arrangement the greater part of the routine and detail may be taken off the hands of the hon. sec., and the time at his disposal may be spent in development and general supervision.

The expense of such a secretary need not be great, as it requires no special education or experience, and may easily be done in leisure hours by a young clerk or schoolmaster who is glad to add a few pounds to his income; and the case of many associations would probably almost immediately be met by a large increase in the number of subscriptions. No doubt a well-chosen committee and an active secretary will offer to the members a better bill of fare at the price than a less efficient administration; but in a great degree the bill of fare must depend on the funds at their disposal, while again, on the other hand, the income will, to

some extent, depend on the bill of fare offered and *given*. A good deal of discontent has of late been produced by the non-fulfilment of promises outside as well as inside the bee-world; but what perhaps has led to more justifiable discontent than anything else is, that individuals have found themselves neglected; for this a remedy will be found in the *responsibility* of a paid assistant secretary.

As to 'shutting the stable door when the horse is stolen,' as applied to experts' visits, it is decidedly a matter of opinion at what particular time those visits are of most value; whilst one member cannot be visited too early in the year, another would like his call when he is 'ready to put on supers;' in this it is manifestly impossible to please all; the most that can be aimed at is to prevent some errors, show the causes and results of others, and to give such general instruction as the opportunity may suggest.

The great use of the expert's visit, we take it, is to be found in the comparison of methods and success, which he is able to make and speak of as he goes from one to another of those who have but little opportunity of seeing what others are doing.

The circulation of the *Journal* is another vexed question; but surely this, if unsatisfactory, is the fault of the members individually, not of the respective associations. It is no new difficulty or peculiar to the *Bee Journal*, it is a grievance as old as book clubs. We have found the following method, however, to work well: at the foot of the list of members, amongst whom each copy is to be circulated, the name and address is written of one person, to whom all complaints respecting the circulation of that particular copy should be addressed.

One Association has adopted a plan which we believe works well. When the number of subscribers in any one parish reaches six, they can, upon application, have sent to one of their number a copy of the *Journal*, each issue, the circulation of which they can arrange for themselves, and which remains their property after circulation. In parishes where there are a large number of members, they receive copies in proportion.

The suggestion that local libraries be established by the county Associations and extractors provided by them for each district, is, no doubt, a move in the right direction; but this again is a question of funds. Extractors and libraries are expensive things, and to establish them in a number of districts requires a very considerable outlay, not to speak of the work entailed in making and maintaining the arrangements for all to have the use in due course.

We do not speak of these things as impossible, but what we wish to point out to 'Leicesterian,' 'Βοῦς,' and others, is, that the perfect organization of a county association with very limited funds, and with a staff which consists entirely of volunteers, is not so easy a matter as they appear to think, especially when those who are not satisfied, instead of coming forward to lend a hand, rush into print to proclaim their grievances anonymously.

As regards smokers, veils, and other minor appliances, associations can hardly be expected to undertake to provide them, and we really think that in these matters the cottagers will be able to take care of themselves.

One association may find it most advantageous to lay out its money in one way, and another in another, but it must be remembered that all have not the same advantages, and some counties are naturally much more difficult and expensive to work than others; but the permanent efficiency of any Association must depend on the amount of energy and public spirit shown by its individual members, not upon the activity of one or two persons.

As to the *two gentlemen* 'who would join if they could be shown one material advantage,' we can only say that the idea of joining an Association simply with the view of getting a material return for your money, is not a very high or noble one; and certainly not in accordance with the views of those who have given so much time, labour, and money in the interests of bee-keeping.

If we understand the word 'association' rightly, it implies a joining-together of a number of persons with a view to carrying out some object which they have in common; and this further implies mutual forbearance, individual energy, and unselfish co-operation.

THE PEEL MEMORIAL FUND.

We note that the Committee of the B. B. K. A. are about to take active measures to raise the necessary moneys for the Peel Memorial Fund: and that to effect their object they propose taking advantage of the machinery of the County Associations,—a machinery called into existence in a great measure by Mr. Peel himself. It is to be hoped that all connected with these Associations—the hon. secretaries, district secretaries, and county representatives—will respond to the appeal of the Committee, and do their utmost to make the fund a success. Circulars containing the proposal of the Committee for the distribution of the fund, with the requisite forms for the application for subscriptions, will be forwarded to the hon. secretaries, and through them to all the members of their Associations, so that every bee-keeper may have an opportunity of aiding in the object of this fund. This object is 'to raise a fund in memory of the late Rev. H. R. Peel, to be invested, and the interest to be devoted annually, biennially, or at such other interval of time as the Committee of the British Bee-keepers' Association may from time to time think fit, to a prize or prizes to be given to cottagers, in connexion with the advancement of bee-keeping in the United Kingdom.' And so, while conferring a benefit on bee-keepers, it will help to keep the name of Mr. Peel fresh in their memories, and, in some degree, to express their sense of gratitude to him who was so steadfast a benefactor to bee-keepers, and who by his energy and enterprise did so much to promote bee-keeping and to bring it to the prominent position it now occupies.

We hope that there will be a hearty response to the appeal of the Committee, and that there will

be a generous rivalry among all county secretaries, and that they will strive to do that which lies in their power to make this fund worthy of themselves and honourable to the memory of Mr. Peel.

SURREY BEE-KEEPERS' ASSOCIATION.

We would desire to direct the attention of bee-keepers in Surrey to the forthcoming Annual Exhibition of bees, honey, and appliances, which will be held on the 12th of August at Lower Cheam House, Sutton, Surrey, in connexion with the Floricultural and Horticultural Society. The schedule of prizes is on a most liberal scale, one feature especially we note is that many of the prizes consist of books on bee-keeping. Every information respecting the Show may be obtained from Mr. P. Waterer, Sutton, Surrey.

ABERDARE SHOW.

We are requested to state that no entrance-fees will be charged for Exhibits entered for this Show, which is fixed for the 13th inst.

THE NEATH SHOW.

We are requested to notice that at the Show to be held at Neath on the 5th and 6th of August, in connexion with the Glamorganshire Agricultural Society, Mr. Blow, of Welwyn, Herts, will conduct the manipulations instead of Mr. Brown, of Bewdley, who is unable to be present. We should also say that the grant of 20*l.* was not made to the Glamorganshire B. K. A., which is not yet in existence, but to the local Society.

USEFUL HINTS.

Examination of Frame-Hives.—When manipulations are in progress some of the frames of foundation given too late, and after-swarms, will be found drawn out and occupied by brood or honey at one end only. Let these be turned round, and, if at the sides, let them be placed in the middle of the brood-nest, and the bees will finish them. Left alone they would probably remain *in statu quo* until another season. Cut away and straighten all uneven portions, so that the combs may range straight, and within the frames, from end to end,—an important item in wintering successfully.

Packing Sections, &c.—We are repeatedly asked for advice on packing honey for transit by rail, for marketing, &c. The safest travelling-crate for sections which we have seen is one lately introduced, the invention, we believe, of Mr. Baldwin, with loose-fitting bottom, acting on springs which obviate all jarring. Messrs. Abbott have introduced a novelty for this purpose—see their advertisement—which will be found adverted to on p. 218, July 1st. Crates for extracted honey, in glass jars, are sold by all dealers in appliances. At best, the transit of honey, in sections or glass, is attended with considerable risk, especially by rail, and, when possible, the safest plan is for some one to travel in charge of it. When extracted honey is sent in bulk, in cans or barrels, there is little risk of damage.

Honey-dew.—Numerous correspondents complainingly inform us that the honey collected, since about the middle of June, is of a very dark colour, insipid to the taste, and without aroma. This is a most true description of the so-called honey collected from the aphides, a pest with which the whole country is at this time plagued. The term 'honey-dew,' and what it includes, has been warmly debated by most of our prominent apiarists, but we have not seen a truer or better definition of the term than the following, given by an American contemporary :—

'Honey-dew.—The best authorities are agreed that there are two kinds of honey-dew, or, at least, that honey-dew is derived from two very distinct sources. One kind is purely vegetable, and is exuded by plants, often to such an extent that it falls on the ground in a shower. The other kind is produced by aphides or plant-lice. Bee-keepers are justly very suspicious of honey-dew. It may do, perhaps, for warm-weather food, but it is generally agreed that bees cannot winter well on it, although exceptional cases are recorded.'

Our own experience is that, as food for bees, it is injurious, and, although we have been troubled with it but little since the introduction to our apiary of the Italian, Cyprian, and Syrian races, we always extract any small deposit, and supply its place, as winter food, with sugar syrup. For confectionery and similar uses it answers the purposes of better honey. It is to be feared that many apiaries will be seriously affected by this product during the present season, from the long drought and the prevalence of easterly winds. The July of last year was very different from the one just ended. In the former occasional showers kept the white clover and other forage in continuous bloom, and the nectar stored was not only abundant, but of the finest quality. In the latter, although the yield has been, perhaps, a fair average, we fear the quality of a large proportion will be decidedly inferior. The long drought—in many districts six and even eight weeks without a drop of rain—sadly militates against both quantity and quality. The pastures are burnt up, the foliage is covered with aphides, and water fails to a serious extent. Except from heather the harvest must soon be over.

Removing to the Heather.—From frame-hives all honey should be extracted before removal to the heather, and the frames should be secured from lateral motion by spaced floor-boards, ventilation being plentifully afforded, both above and below, by means of perforated zinc or open canvas, generally called cheese-cloth. The outside combs of skeps should be cut out, up to the brood-nest—the bees being driven away by smoke—and the skeps should travel in an inverted position, the combs being secured from movement by pieces of cork between and paper packing on the outsides. The operation of cutting out should be performed a couple of days before removal to allow the bees to clear up the liquid honey, and to settle down before the journey. We venture to prophesy a large yield of heather honey, the finest, to our taste, of all nectars, not even that from white clover excepted.

Requeening.—The month of August is, perhaps, one of the best for cashiering aged, worn-out queens, and introducing young ones in their place.

Colonies, whose young queens have been lost on the marriage flight, should receive a queen at once, or the bees will quickly dwindle to extinction. The insertion of a nucleus of two or three frames —queen, bees, and brood complete—in the centre of the colony is advisable where practicable, taking the precaution to encage the queen for twenty-four hours.

Introducing Queens.—Judge Andrews—an American apiarist of note—remarks on this subject :—

'I always cage my queens, except in cases of experiment, for I never introduce one that I can afford to lose. I keep the queen confined for two days near the middle of the cluster. I then remove the reigning queen and liberate the new one. Some queens I liberate sooner, for I can invariably tell, by looking at the bees upon the cage, whether it is safe to liberate the queen or not. Other queens require to be confined longer than two days. I never fear that the bees will not feed the caged queen. The presence of a reigning queen does not affect them in the least. I do not wish it to be understood that the retention of the old queen is a point in the safe introduction of the new one, but only that it saves her two days' work in the colony, and it prevents loss of work by the workers, from the great commotion that follows the missing of the reigning queen, and prevents the starting of queen-cells.'

This method appears feasible, and we intend shortly to give it a full trial.

Driven Bees.—Cottagers' apiaries may now be visited for condemned bees. The bees should be carefully and quietly driven from the skeps—almost to a single bee—and the combs cut out clean, and deposited indoors without delay to prevent robbing, and the emptied skeps returned to the garden to be cleaned by the bees. Let the driving be done as far away from the cottage door as practicable, to avoid the stinging of children or others. The English cotter appreciates a skilful, neatly performed operation. He generally sells, in the comb, the best of his honey, and does not like to see it crushed and broken. These operations are best performed by experts. If neatly done, Hodge will invite you to come again another year. We are besieged in the autumn by numerous applicants, 'When will ye come to tak the bees, sir? they're gettin' nowt now, and 'll soon be wastin'.' Queens secured from the 'after-swarms' are useful for keeping round.

Breeding.—When the honey flow ceases, and extracting is finished, feed moderately to encourage breeding. September-bred bees are, perhaps, the most useful of all, as they fly freely before the winter sets in, and are less likely to be attacked by dysentery, living to work another spring. Bees bred after September are rarely able to take flights, and often perish during the winter months, fouling the hives, and causing disease.

Sections.—Many prefer at this time to collect in a rack the unfinished sections, and to place them over a strong colony. The plan sometimes succeeds, and the sections are finished and sealed; but success depends greatly upon the weather. As a rule, it is best to extract them. Late finished sections are almost invariably inferior in quality, and are worth in the market no more than extracted honey.

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee Meeting held at 105 Jermyn Street, on Wednesday, July 23rd. Present: Mr. T. W. Cowan (in the chair), the Rev. Dr. Bartrum, the Hon. and Rev. H. Bligh, the Rev. G. Raynor, the Rev. F. G. Jenyns, the Rev. F. S. Slater; Messrs. W. H. Dunman, R. J. Hinton, D. Stewart, G. Walker, and the Secretary. Letters were read from Captain Campbell, Captain Bush, and the Treasurer, regretting their inability to be present.

The minutes of the last committee meeting were read, confirmed, and signed.

The Finance Committee presented a statement of accounts recommending various bills for payment, leaving a balance in hand of 25*l.* 19*s.* 2*d.* They further reported that the Secretary had prepared the Prize List, &c., of the Preston Show, and they recommended that the same be paid forthwith.

The Chairman reported that he had received the following communication from Mrs. Peel, in reply to the resolution passed at the last Committee Meeting, viz.:—

'I need not say how grateful I am for the kind sympathy expressed in the resolution passed at the last meeting of the B. B. K. A., and may I ask you to convey to the Committee at the next meeting how grateful I am, and that I shall ever treasure in my memory the kind manner in which they have expressed their appreciation of my husband's endeavours to promote the advance of bee-keeping amongst all classes. I am so glad a fund is being tried to be raised to perpetuate Mr. Peel's memory, and for a purpose that would be an encouragement to cottagers.'

The Educational Committee presented their Report, and recommended that the Second Class Examination be held throughout the United Kingdom, on Saturday, November 7th next. It was resolved that the Schedule of Prizes to be offered for competition at the Royal Agricultural Show of 1886 be considered at the next Committee Meeting.

Quarterly Conference.

The following county representatives were present:—Mr. F. H. Meggy (Essex), Mr. J. Bowly (Berks), the Rev. J. Lingen Seager (Herts), the Rev. E. K. Clay (Bucks), the Rev. W. Burkitt (Wilts), Mr. P. Waterer (Surrey), Mr. C. H. Hayness (Worcester), the Rev. T. Sissons (Kent), and Mr. A. Lloyd Jones (Carmarthen).

The subject for discussion was 'The desirability of securing satisfactory and uniform rules in Prize Schedules at local and County Shows.' The Secretary of the B.B.K.A. suggested that each branch, *i.e.*, hives, honey, collections, &c., should be taken separately and thoroughly discussed, with the view of drawing up practical suggestions for the guidance of secretaries and exhibitors. Mr. Meggy (Essex), Rev. J. Lingen Seager (Herts), and the Rev. W. E. Burkitt (Wilts) considered that such information was very much needed, but in their opinion they should take the form of suggestions, and not as fixed rules. The question of the packing of hives was taken first.

The Secretary of the B.B.K.A. stated that the packing of hives was generally of three kinds: 1. In a plain box crate. 2. With no crate at all, but simply to nail pieces of wood across the legs of the hive, covering the top with a piece of Hessian, and tying a strong cord round the hive for the convenience of handling. 3. By nailing pieces of wood across the hive in all sorts of directions which, when once removed, no one except the manufacturer himself knew how to put together again. The latter system was very objectionable, unless the exhibitor was present to unpack and repack his own goods.

The Rev. J. L. Seager agreed with the Secretary that simplicity in packing was very much needed. This question was discussed at some length.

Mr. Dunman moved, and Mr. Cowan seconded, 'That at some future date prizes be offered by the B.B.K.A. for the simplest and safest crate for the transit of hives to shows.'—Carried.

On the proposition of Mr. Meggy it was resolved that in the meantime the B.B.K.A. should draw up suggestions for the packing of hives for transit to exhibitions. The question of the glazing and packing of sections was entered upon, but no resolution was come to upon the subject.

It was resolved that the B.B.K.A. be requested to draw up a list of suggestions relating to the various departments of an exhibition, and submit the same for discussion at the next quarterly conference, to be held on Wednesday, October 21st.

The Chairman called attention to the fact that steps had been taken to raise a memorial fund in memory of the Rev. H. R. Peel, and he trusted that every county secretary, district secretaries, and representatives would use their utmost endeavours to make the fund a success in every county.

The Rev. J. L. Seager considered that no difficulty would be experienced in collecting subscriptions providing the B.B.K.A. would supply the necessary forms for the purpose.

The Rev. Thomas Sissons moved, and Mr. Waterer seconded, 'That the Committee of the B.B.K.A. be requested to publish their proposals for the distribution of this fund, together with a form for the application of subscriptions for the use of the several County Associations.'—Carried unanimously.

The Quarterly Conversazione was held at six o'clock, when the following gentlemen assembled to hear the Rev. F. G. Jenyns read a paper, written by himself, entitled, 'Bee-keeping in its Educational Aspect':—Mr. D. Stewart, Mr. T. W. Cowan, Dr. Walker, Mr. Otto Hehner, Mr. Zehetmayr, the Hon. and Rev. Henry Bligh, Dr. Wray, Mr. G. Henderson.

The Rev. E. K. Clay, having been voted to the Chair, opened the proceedings by inviting the Rev. Mr. Jenyns to read his paper, as follows:—

Bee-keeping in its Educational Aspect.

We hear so much of education in these days, all kinds of schools, and all manner of school subjects, and, where there are Board Schools, it is brought home to many an unfortunate ratepayer in such a painfully practical way, that the very word has something repelling in it. And to speak of any fresh subject as a subject of education, and one that might well be taught with advantage, seems like the last straw upon the camel's back.

And certainly there does seem ample load enough without our seeking to add even such a straw. It is the same whether we go to our Universities, or Public Schools, or look at the lists of subjects of which knowledge is required for the competitive examinations—military or civil. And one feels that it must be indeed a clear head that, in the multitude of these subjects—without adding another—can yet preserve a distinct view of each. One feels that there is danger of the the unfortunate scholar having his mind left in that sort of confused condition which is portrayed in that inimitable picture in Mr. Verdant Green's history, in which is shown the impression left on his mind after his first visit to Oxford—the colleges, halls, churches, streets, all intermingled in one confused mass, portions of one college built into another, all distinctness of subject lost in the multitude of things seen.

So that when we talk of 'Bee-keeping in its educational aspect' many will be inclined to exclaim, 'Pray save us from another educational subject, however small. By all means let people keep bees, and make as much profit by them as they can, and get stung as often as they like, but don't talk of bee-keeping as of any educational value.'

And then, doubtless, many outside the little bee-keeping world,—and this bee-keeping world, although much to us, is yet a very little one—an enormous majority in the country not even knowing of its existence; many, we must be aware, look upon the whole thing as nothing more than one of the many modern fads,—something that people, who have nothing much to do, run after for a time, so long as it has the charm of novelty and fashion.

So that I feel somewhat anxious in having to deal with this subject. I feel that there must be a very natural prejudice against its very title. And yet I feel that it is an important subject, and that there is much to be said of it, although I fear I cannot say it as I could wish, or as it ought to be said.

Now to see that there is an educational aspect of bee-keeping, let us first think for a moment of the true meaning of education: let us go to first principles.

Well, the theory of education is, according to the meaning of the word, the leading out, or the unfolding of the human powers. It is designed to bring into active exercise the germs of intellectual life, and to make them available for the welfare, usefulness, and happiness of the person educated. It is a process of development. And this development, if proper balance is to be kept, must be over a wide area. The truest education, that to be aimed at, must not be one-sided or narrow. There are the physical, intellectual, moral, and spiritual faculties, and each, in its proper proportion, is to be developed, fostered, strengthened, and raised.

Thus in the education of childhood we must not cultivate the physical at the expense of the mental, or the mental at the expense of the physical faculties. We teach the child to walk, we foster its strength, and seek by degrees to develope it. And so, in after years there is much to be said for the muscular and athletic training of our schools and colleges. It is, indeed, a part of education. But at the same time that we teach the child to walk we exercise its mental powers through the use of its eyes and surrounding objects, and so go on seeking gradually to unfold those powers, not in one direction only, but in many. We teach it to read, and write, and sum, not because the being able to read, and write, and sum, is the end of education, but because they are the means by which the child's powers are developed, and by which it is able to take further and yet further steps in knowledge, and become a wiser, happier, and more useful member of the community.

And I need hardly say that it is a very narrow and low view of education to think of it simply as a means by which the person educated shall be able to know sufficient for what is his special call in life—just that and little more; just the technical knowledge of his profession, trade, or manual labour, and thus be able to earn a livelihood. Necessary as this knowledge is, yet make it the all and all of your teaching, and although you have taught much, you have not educated at all. And the man, so taught, will be certain to be of the narrowest mind, self-opinionated, and ignorant to the last degree.

It has been well said that 'the first object of school is not to fit children to earn a living, but to quicken the faculties and increase intelligence.' And very much to the point, and most true, is that which we find in the 'Instructions' issued by the Education Department to Inspectors when speaking of the 'merit grant' and what constitutes an 'excellent' school, 'Above all, its teaching and discipline are such as to exert a right influence on the manner, the conduct, and character of the children, to awaken in them a love of reading, and such an interest in their own mental improvement as may reasonably be expected to last beyond the period of school life.'

And, I suppose we know something of this process of mental development in its breadth, and its use in our own experience. Much that was learnt at school and college has long ago been forgotten. Perhaps in our

University days we took a mathematical degree, and now the terms and formulæ, and many of the problems, which then to us were the simplest possible have now passed into complete oblivion, and yet perhaps we are keenly alive to the training, and the real education which those forgotten studies gave. The science has been forgotten, but its fruits remain.

And now, if this is the correct view of education, and we leave aside, because having to deal more especially with elementary education, all the higher subjects of classics, mathematics, and modern languages: and also leave aside, as beyond our present subject, the consideration of those essential subjects of all education without which no education is worthy of the name—I mean, first of all, religious knowledge as the foundation, and then not only the simple 'three R's'—reading, writing, and arithmetic—but a knowledge of English generally: I say, if we leave aside all these and come to think of all the other many subjects (any of which may be taken up with profit), and the many attractive fields of science and art into which the educator can lead the mind to be educated, there is perhaps no more important or distinctly educating field than that of Natural History.

I do not know that there is any study in which can be better or more truly realised what the Bishop of London, in some weighty words spoken the other day, describes as the ideal of elementary education. He said, speaking at the meeting of the National Society, 'The ideal of elementary education no doubt is that the religious instruction and the secular instruction should be to a very great extent fused; that there should be no secular instruction given in which a religious element is not either visibly or unconsciously present; and that in the religious education you should be as truly cultivating the human understanding as if you were giving pure secular instruction.'

The scholar indeed in this field of Natural History, whatever branch he takes up, I am sure will be consciously or unconsciously impressed with the highest and most important truths. He will be one of those who finds, as our great Shakespeare says—

> 'Finds tongues in trees, books in the running brooks,
> Sermons in stones, and good in everything.'

And no study surely will more certainly draw out, foster, and strengthen those habits of 'exact observation, statement, and reasoning,' which the Education Department in its code impresses rightly as of great importance, and which, according to what I have said, form so important a part of that true scheme of education which we must aim at if we wish to avoid narrowness and one-sidedness.

If the scholar stands merely on the threshold of the wide field, he sees so much attractive, that he is almost irresistibly, for a time at least, led on; the mind is necessarily expanded as it takes in a few of the countless marvels of nature's works all around. He will be led to search for truth, and to distinguish between truth and error, by careful observation, reasoning, and actual experience. And in all this his judgment will be strengthened and his reasoning powers cultivated. And as he is taught (as nothing else will teach), the marvellous adaptation of everything to its purpose, he will learn amidst Nature's works of Nature's God. And in these days, what more is necessary?

But this subject of study and education, this natural history, is an immense field, boundless even to the highest intellects, still boundless after a lifetime's study; and but very few indeed can travel so far, or study it as a whole. Few, indeed, can study any considerable portion of it. All that can be done, at all events in elementary schools, is to lead the scholar to the very threshold, and to give him some little idea of the vastness of the field before him. And I think the tendency of such a very cursory view may be to some, perhaps many, the very opposite to what I have said—rather to discourage further investigation than to lead on. The vastness of the field is indeed to a certain extent oppressive and discouraging; and as the scholar meets in the very first instance with the mysteries of classification, and the hard names to which at first he can attach but little meaning, it is very possible for him to be inclined to turn away to something more attractive and immediately practical.

How true this is may be seen, I think, by those books by which the subject of natural history is supposed to be taught in those schools which take up, what is called 'Elementary Science,' as one of the 'Class subjects.'

I take up one of the very best of these manuals, the writer of which must have been another Solomon, for he speaks of 'trees, from the cedars of Lebanon even unto the hyssop that springeth out of the wall, also of beast, and of fowls, and of creeping things, and of fishes;' and of all in a very few short chapters. For children of about eleven years old, I find that they are to get an idea of the 'Animal Kingdom and its five sub-Kingdoms: (1), the back-boned; (2), the soft-bodied; (3), the ringed and jointed animals; (4), the rayed or starshaped (5), plant-like animals;' from a chapter of hardly four pages; the next chapter, of two pages, describing how the back-boned animals are divided into four classes, mammals, birds, reptiles, fishes. And then from the same little book they are to learn of plant-life in garden, field, and forest; and in another part of the same book, of fire and water, of coal and chalk, of iron, tin, copper, and lead. And so on, more or less, throughout the series. The writer tries to make his subject popular and attractive, and to leave out hard names, and, I think, does so as far as possible; but one feels, all the same, as one lays down the book, that the subject of 'elementary science' is far too vast to be treated in this way, and that unless with a very exceptional teacher there must be a confusion of ideas; little more than hard names committed to memory, but soon forgotten, and in the majority of cases but very little practical result or real education.

And it is for this reason, I have no doubt, that in very few schools is 'elementary science' taught at all, so much so that one of H.M. Inspectors told me, that in only one school in his district was it even attempted, and that when this one came to be examined he found that the children knew nothing at all about the subject.

It is true that in some schools Botany, which however is called a 'specific subject,' has been taught with great advantage. But this again is a wide, vast, and difficult subject, except in the hands of a very few exceptional teachers, following in the wake of the late Professor Henslow, who, before the days of Codes, taught botany in his village school in Suffolk with results most strikingly successful: but then, perhaps, no man ever lived who was able to teach scientific truth in such an attractive manner, or in such simple language as he was.

I proceed therefore, now, a step further in what I want to say, and with these considerations in view, I would ask whether, instead of letting the scholar wander ramblingly over the whole vast field; whether there is not much to be said in favour of leading him into one little portion, and seeking to get him to understand that little portion well and intelligently? Will it not be likely to do him more good, and to be more truly educating? And will it not be more likely than any other plan to lead him on, and to make him wish to know more, and to seek further into the field? The one little portion well understood, and worked out thoroughly, and especially if the knowledge gained leads to practical results, enables him to practise better and more intelligently some useful industry; this study will be far more attractive than a very superficial knowledge of the whole vast field, so superficial as hardly to be called knowledge, and certainly too superficial to lead to any practical result.

And, if this is so, I do not know that we can lead our scholar into any more attractive, and at the same time educating little portion of the field than that in which we are specially interested, that which deals with Bees and Bee-keeping. There is much, very much to be said for other portions, but, as Kirby and Spence claim for entomology as a subject of interest and instruction precedence over both botany and the higher branches of zoology, so, I think, we may claim for the study of bees precedence over every other department of insect life.

It is a subject which, while it has the greatest fascination, interest, and pleasure of its own, calls forth in a peculiar way habits of observation and ready resource. And there is no department of natural history in which more clearly is seen the marvellous adaptation of every portion of structure to the wants and necessities of the creature, or in which habits and instincts more clearly demonstrate some of the highest truths to be learnt from the observation of nature. It is a page interesting, marvellous, and instructive in that wondrous book of nature which, as Keble says, shows 'how God Himself is found.'

And thus, I am sure, the tendency of bee-keeping is to make the man, and if so to educate the child, to be observant and accurate, to be prompt, ready, and provident, to be kind to God's creatures, and attentive to their wants. And, more than this, it will not fail, I think, to tend to make him a lover of nature generally, and happy in the midst of Nature's works, and so a devout lover of Nature's God.

Those of us who have been much amongst the poor know well the humanising and elevating influence of flowers in cottage homes. They may be poor specimens, struggling for existence amidst smoke and darkness, but still with the delight they give, we see them, in the care and observation they call forth, as educators of heart and mind, as teachers and means of mental improvement. And I am sure what can be said of them can be said still more emphatically of bee-keeping as an intellectual and pleasure-giving pursuit, to say nothing of the moral lessons to be learnt from the diligence, care, labour, and economy seen in the hive.

If, then, this study can be advanced, and interest in it promoted, a very good educational work is done. And when our Association takes as the terms of its charter, the object of its existence, 'the bettering the condition of cottagers and the agricultural labouring classes,' I hope I am right in taking these words, as not only referring to a means by which those in such humble positions can make a little more money, and add to their store and comforts, but as also referring to the higher education which bee-keeping gives them—the bettering of their condition by the bringing out of the intellectual powers; by giving them a pursuit which will inform and improve the mind; and which will better their condition by making them better in heart and life.

But I look upon the study of bees—leading to bee-keeping—as not only a subject of education for the cottager and artisan, but for those also whose education can take in the subjects of a far wider field of natural science. No one, in whom there is any love of natural history, can rise from the careful study of such books and papers as those of Cowan, Cheshire, Hehner, Langstroth, Cook, Lubbock, and many more, and not feel to have been instructed and made the better and wiser for it, and to have a wider view of the world in which he lives and the economy of its life.

We pass then now to the last part of the subject. If the study of bees and intelligent bee-keeping may be made so truly educational as I have suggested, how can the study be best promoted? We see the field before us, how can we occupy it?

To a certain extent much has been done already in years past, and there is still much to be done on the old lines. The great increase of interest in bee-keeping during the last few years has had its good effect, although, of course, to a great extent the interest has been excited by the profit which, it is said, can be made by it. The labours of this Association, supplemented all through the country by the efforts of its affiliated and other societies, have done much. Valuable lessons have been taught to thousands. Bee-keeping has become a national industry, and there cannot be all this bee-keeping without much of the education of which we have been thinking.

But we must not stop here. If it is a valuable educational subject we must press on in that direction. That it should be taught in our Elementary schools is to be desired, and the example of Germany shows us that in not teaching it we are behind the most advanced educationists. But we must not be too hopeful of getting it into our schools, at all events, at present, and for some time to come. We must not expect much of the Education Department, without whose sanction but little can be done. And it is further useless to conceal the fact that, unless by some means it is made a paying subject—the subject that is, of grant—few schools are likely to take it up even if permitted, for the pressure to earn money is so great; and in so many schools (unfortunately I think) salaries are made so dependent on the grant earned. And this applies to both Voluntary and Board Schools. People must not think, as they often do, that Board Schools can do more than Voluntary Schools with this and kindred subjects. It is a very common mistake to think so; but, as far as I know, all that Board Schools can do which Voluntary Schools cannot, is to obtain by compulsion a great deal of other people's money, and then to spend it freely, and often recklessly; and, after all, get no better results than the poorer schools. And in proof of this I may say that while the grant earned per child is about the same in both kinds of school, the average cost per child in Board schools is nearly 2*l.* 2*s.*, whereas in Voluntary schools it is only a trifle over 1*l.* 15*s.* or a difference of about 6*s.* 6*d.* per child in favour of Voluntary Schools.

It may seem, indeed, an easy thing for the Education Department to move in the matter, but when we know the real state of the case, and the pressure that is put upon them in all directions, and the innumerable complications in the way, it is not at all surprising that they are very shy of attempting any such innovation as introducing bee-keeping as a school subject in any form. A small concession they have made. They have given official sanction permitting bee-keeping to be taught as a 'specific subject' when approved as such by the Inspector; but to those who know the Code, which rules everything, this really amounts to nothing,—nothing even now; and it is not impossible that, as many of the best-informed think, these 'specific subjects' will before long drop out of the Code altogether. And I will venture to say that, however publicly this permission were made known, not one single school, and certainly no rural school, would ever think of so adopting it as a 'specific' subject.

If it could be taught as what is called a 'class subject' (the class subjects being, besides needlework for girls, English, geography, history, and elementary science, of which only two can be taken, one of which must be English), if, I say, it could be taken, as the Association in its memorial to the Education Department asked, instead of elementary science, or rather as one portion of the subject—one portion to be thoroughly known rather than the whole subject imperfectly—if this could be, it would be a great step in advance. Many schools—especially those where the teacher is an enthusiastic bee-keeper, and there are many such—would doubtless adopt it as a subject.

But at present this has been denied us, and I really do not wonder at the decision, much as I could have wished it otherwise; especially so as, at present, very little is known of bee-keeping outside the little bee-keeping world. We know it, and, like many of those who have

special interests, we are too apt to think that our little world is the whole world.

If, then, we want to bring the teaching of bee-keeping into our schools, we must, first of all, as much as possible, try to educate the Education Department and the Inspectors as to its importance by more and more getting public opinion to bear upon them. And thus we must bide our time, showing by the work we do, and which will, as time goes on, be more and more known, that we, as educators as well as promoters of an industry, are worthy of official recognition.

But we must not think only of elementary schools. Besides these, there are the great middle-class schools, in which are being educated many of those who, with greater intelligence and the advantages of higher position, will be qualified, not only to be intelligent bee-keepers, but to lead and instruct others around them in their future positions of life. And I feel sure that a field is open to us in these great and important schools, which are not trammelled by red tape and the Education Department, but are free to give a liberal education in their own way.

And then there are our Agricultural Colleges. And there is a field there for effort in the direction we seek, for there are the young men who, in many cases, will be the leading agriculturists of their respective districts; men of superior intelligence and education, and fully capable of appreciating the importance or not of subjects brought before them, men of some science, men who will be fully competent to be teachers of others in after-life. And feeling the importance of this field, we rejoice to see that an effort has been made at one of the Colleges by our excellent friend, Mr. Burkitt,—an effort in which we wish him every success.

But really, after all, what we must rely upon to further our schemes must be the influence of public opinion. When this is brought to bear, the thing will go on. And in order to obtain this, we must—as I have indicated—show our worth; show that we do not advocate a fad or fashion, but rather that which is a true educational subject, as well as a profitable national industry.

[The discussion on the paper will appear in our next issue. At the close of the discussion Dr. Wray exhibited his 'Mel-pel,' a description of which will be found on p. 255.]

BUCKINGHAMSHIRE BEE-KEEPERS' ASSOCIATION.

The Association's second show this season was held at Stony Stratford, in connexion with the Horticultural Show, on Tuesday, July 23rd. The exhibition was ably managed by Mr. Graves, the late Honorary Secretary of the Association, whilst the Rev. F. S. Selater acted as judge. The honey exhibited showed a marked improvement on that of last year, both for quality and the number of exhibitors. Mr. Sturdy, of Thornton, carried off the prize open to the entire Association both for sections and extracted honey. Mr. J. Wootton sent a large quantity of excellent comb-honey in sections, which unfortunately did not comply with the requirements of the schedule, and consequently lost a possible place on the prize lists. We should be glad to hear of more purchases of honey being made by the public at such shows. It seems most desirable that the members of county associations should consider this subject with increased care, in order to establish a thoroughly recognised sale at local shows, and perfect the facilities required by the public for taking honey home in small quantities.

Subjoined is a list of the prize-winners:—

Prizes open to all members of the Association.—Class 1. (Sections).—1, Mr. W. Sturdy; 2, Mr. Emerton; 3, Mr. Holdour. Class 2. (Extracted).—1, Mr. W. Sturdy; 2, Mr. W. Parsons; 3, Mr. W. Clarke. Class 3. (Non-sectional).—1, Mr. J. Wootton; 2, Mr. J. Graves. Class 4. (Best Display of Comb-honey).—Mr. J. Graves.

Prizes open to members residing in the Stony Stratford district, and given by Herbert Peel, Esq.—Class 5. (Sections).—1, Mr. J. Graves; 2, Mr. W. Rogers; 3, Mr. W. Parsons. Class 6. (Extracted).—1, Mr. J. Graves; 2, Mr. W. Rogers; 3, Mr. W. Parsons.

SOMERSETSHIRE BEE-KEEPERS' ASSOCIATION.

Show held at Bath, July 2, in connexion with the Rose Show.

Class A, open to members of the Somerset B.K.A. residing in Bath and immediate neighbourhood only.—Best collection of comb honey: Mr. C. Long, Longwell Green; Mrs. Lord Batt. Best twelve 1-lb. sections: H. Skrine, Esq., Claverton; Mr. Luton, Tiverton; Mr. Mitchel, Bath. Best twelve pounds extracted honey: no entry. Best super: no entry. Class B, open to any members of the Somerset B.K.A.—Best twelve 1-lb. sections: Rev. C. G. Anderson, Otterhampton. Best twelve pounds extracted honey: Rev. C. G. Anderson; Mr. T. Hallet, Otterhampton. Class C, open.—Best smoker, not to exceed 3*s.*: no entry. Best bar-hive, not exceeding 10*s.* 6*d.*: Ward & Co., Bath; Bethel, Bath. Best super, property of a cottager: G. Minchin, Bath. Best skep of bees for driving: G. Minchin, Bath. Judges of honey: Messrs. S. Townsend, Bath, T. Blow, Welwyn. Judges of hives, &c.: Messrs. C. G. Anderson and S. Townsend.

The show was held in lovely weather, and was very successful. Mr. T. Blow manipulated the bees and lectured before attentive audiences. Later in the afternoon the Rev. J. H. Dixon kindly assisted.

A show was held at Clevedon on July 22, under the auspices of the Clevedon Horticultural Association, when the bee-tent of the Somerset B.K.A. was on the ground. The Hon. Secretary of the Somerset B.K.A., Rev. C. G. Anderson, manipulated and lectured to good audiences till late in the evening. A little honey of good quality was shown by local exhibitors.

MONMOUTHSHIRE BEE-KEEPERS' ASSOCIATION.

I have much pleasure in sending you a short account of some of our proceedings this season. On June 23rd and two following days the M. B. K. A., in connexion with the Herefordshire Agricultural Show, held at Monmouth, had their bee tent on the ground, and also had a shed devoted to their service for the exhibition of bee-furniture and honey produce. The bees were manipulated by Mr. M. Meadham, expert to the Association, and was greatly assisted by the Rev. J. E. Sale, who delivered during the manipulations most useful lectures on the present improved system of bee-keeping. The Association gave prizes for both hives and honey, and considering the state of the weather, which were the only wet days there had been for a long time, the exhibition was a very fair success. Since then the tent has been at two horticultural fêtes—the one at Newport on July 16, and the other at Maindee on the 23rd. The former was very well attended, and, in a financial point of view, was most satisfactory; the latter, though by no means so remunerative, it being only, or chiefly, a cottage gardener show, yet seemed to give great satisfaction, and likely to induce many more cottagers to join the Association, which was the object aimed at, and also more than well covered all expenses attendant in bringing the tent to the ground. At each show Mr. Meadham single-handed did all the manipulations, and seemed to interest the spectators with the instructions he gave respecting bee-keeping. The Association proposes holding their honey show in connexion with the Abergavenny Horticultural Fête to be held on the 27th of August, when prizes, open to all, for hives and honey will be given by the Association's junior Hon. Sec.—James Oakeley.

SURREY BEE-KEEPERS' ASSOCIATION.

On Wednesday, 12th July, an exhibition of bees, honey, and wax, was held in connexion with the Croydon Horticultural Society's Show, in the grounds of J. S. Balfour, Esq., M.P., of Wellesley House. Prizes for exhibits of honey by cottagers, and others were awarded, and also for bees wax, and for observatory hives. A honey fair was also held, but there was very little honey sold, though there was a good display of fine honey in comb and extracted, by Messrs. Hollands, Seabrook, and Nixon.

The bee tent of the Association has also attended local Horticultural Shows at Bagshot, Cobham, Charter House, Godalming, and Albury, where lectures were given on bee-keeping by the Hon. Secretary, assisted by Mr. F. H. Lemare, and the cottager's expert, Mr. Elson, of Farncombe, and several fresh members entered. Honey fairs were also held at each of the above localities, and the attendance in the manipulating tent was fair, the weather being all that could be desired.

During the winter months several lectures on bee-keeping have been given at many localities by the Hon. Secretary, and much interest excited, many new members having joined the Association and commenced bee-keeping.

BISHOP'S WALTHAM HONEY SHOW.

A show of honey was held in connexion with the Horticultural Society's Exhibition of Bishop's Waltham on July 17. The main object of the Society is to encourage cottagers and others to keep bees on the modern principle of bar-frame hives, as a source of profit, in preference to the old-fashioned skep. The competition was rather small, owing to the unfavourable season for the making of first-rate honey in this locality; what was shown was generally of a good quality, and, with an improved schedule another year a much better show is confidently looked forward to. The principal class was that for the best show of honey in the comb in wooden sections of any size (open to all). In this class the first prize was awarded to Mr. G. Horner, of Swanmore, for twelve pounds of excellent honey, good in colour, squarely built, and of excellent quality; second prize was taken by Mr. H. West, of Swanmore House, with a stand of twelve pounds, little inferior to the first; the third prize being taken by Miss Medlicott, of Swanmore Vicarage. Class 2 was for the best show of honey in wooden sections of any size (cottagers only). (The wording of the schedule in this class required a slight alteration, the quantity required should have been stipulated.) In this class Mr. E. Ainsley, of Swanmore, succeeded in carrying off first honours with twelve pounds of honey in excellent condition, being closely followed by Mr. G. Horner, second, and Mr. H. West, third. Mr. Privitt, of Bishop's Waltham, exhibited, 'not for competition,' an excellent show of this year's extracted honey in bottles, and also about twelve pounds of super honey of excellent quality and condition. Miss Myers, of Swanmore House, also helped to increase the attraction with an excellent exhibit, 'not for competition,' of last year's honey. Mr. Padbury, of Bishop's Waltham (a bee-keeper of thirty years' standing), and Mr. Privitt were the judges.

THE ROYAL AGRICULTURAL SOCIETY AT PRESTON.

The exhibition of hives, honey, and bee furniture most applicable to modern bee-keeping is a revelation to those who have been accustomed to the old straw skep, the beehive so often used in illustration to symbolise industry. It lingers on in some rural districts, associated still with all the primitive methods of bee culture, but the day of its extinction is not far off. The moveable comb hives, which are absolutely necessary if bees are to be intelligently managed and kept at a profit, are fast coming to the front, and bee-culture is already followed extensively by many individuals, who find that when conducted on scientific principles it can be made a profitable source of income. The British Bee-keepers' Association offer prizes again this year for the best hives, and also for the best exhibition of honey extracted, and in sections of combs. There was a very fair number of entries, and great interest was taken in the competition. Jars of run honey of various hues, from the palest yellow to the darkest brown, indicated the nature of the bee pasturage. The hives and apiarian appliances were very numerous, and the variety of the latter especially were in many cases excellent testimonies to the inventive genius of several of our most noted bee-masters. In a spectacular sense, the most interesting exhibits on the stands of the inventors were what are known as observatory hives. Among these obervatories one which attracted much attention was a unicomb structure exhibited by Mr. S. J. Baldwin, one of the experts of the British Bee-keepers' Association, and the lecturer on bee-culture and bee-driving at the Royal Show this week. George Neighbour and Son, of High Holborn, took the first prize for the best collection of hives and bee furniture most applicable to modern bee-keeping. Messrs. E. C. Walton also exhibited some moveable comb beehives and a speciality in the shape of boxes constructed to hold 1lb. of honey, to be sent by parcels post. Ligurian bees were mostly used at the show for observatory purposes. The bees were flying about in hundreds, and the temperature was high, as could be easily ascertained by feeling at the glass. Messrs. Dines and Son, well-known and successful makers, were awarded the first prize for the best frame hive of a substantial character for general use in an apiary with arrangements for summer and winter use. There was a good show of frame hives for cottagers' use, and Messrs. Dines and Sons here again carried off the chief honours with a structure the leading qualities of which were efficiency and simplicity. The most interesting feature in connection with this exhibition was the illustration of bee-driving by Mr. Baldwin, who delivered a very instructive commentary while he manipulated the bees.

Class 191. Frame-hive, not exceeding 15*s*. 1st, Dines and Son; 2nd, S. J. Baldwin; 3rd, A. T. Adams; Commended, W. Lonsdale, W. Knott, E. G. Parker, and C. Redshaw.—Class 192. Frame-hive, not exceeding 10*s*. 6*d*. 1st, Dines and Son; 2nd, A. T. Adams; 3rd, S. J. Baldwin; Commended, W. Lonsdale and C. Redshaw.—Class 193. Collection. 1st, Neighbour and Son; 2nd, W. P. Meadows; 3rd, S. J. Baldwin.—Class 194. Best super of honey. 1st, Woodley Bros.; 2nd, W. Woodley; 3rd, W. Cotterill; Highly commended, the Bee and Fruit Farming Co.—Class 195. Twelve 2-lb. section of comb honey. 1st, Miss Gayton; 2nd, the Bee and Fruit Farming Co.; 3rd, Woodley Bros.—Class 196. Twelve 1-lb. sections of comb honey. 1st, Miss Gayton; 2nd, the Bee and Fruit Farming Co.; 3rd, W. Woodley; Commended, W. B. Carr.—Class 197. Run or extracted honey. 1st, Miss Gayton; 2nd, W. Woodley; 3rd, Woodley Bros.; Highly commended, H. Gibbs; Commended, E. G. Parker.—Class 198. Comb-foundation, made in the presence of the Judges. 1st, not awarded; 2nd, Neighbour and Son.

The Show was an excellent one; more than one hundred entries were made in the eight classes; splendid specimens of honey were shown. The Judges were T. W. Cowan, J. M. Hooker, and R. R. Godfrey. Great interest was manifested in the department, the shed containing the exhibits and the bee-tent being constantly thronged with visitors.

Correspondence.

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom, during the month of June, 1885, amounted to 6848*l.* [From a private return sent by the Principal of the Statistical Department, H.M. Customs, to E. H. Bellairs, Wingfield, Christchurch.]

EXPERIENCES IN BEE-KEEPING.

The following have been my experiences in bee-keeping for the last month. Referring to the reply to my queries in *Bee Journal* of June 1st, I tried transferring B. Found it easier to read about than to *do*. Could I have read the paper on transferring in 1st July number I would have got on better. However the bees have repaired damages and are multiplying. I decided to let well enough alone, and not to move the other hives. I, therefore, every few days put in a fresh frame of foundation in each of them. The bees multiplied rapidly, and I soon had each hive with ten and eleven frames. I then put on supers. W. H., the owner of A, has got sixteen pound sections out of it, and yesterday it sent off a large swarm, which we successfully hived. W. H. was also lucky enough to find a swarm in the top of a tree in the neighbouring demesne. This was secured by cutting off the branch, rolling it up in a tablecloth, and carrying it home. My hive C was evidently going to swarm, so I took off the supers, and found the body crammed with bees, and a great deal of brood in the combs; evidently swarming must soon take place, so I took Mr. Cowan's plan, and put on another body with ten frames in it, and the super over it. I hope this will stop the swarming. I have bespoken already about fifteen swarms of condemned bees, and am making twenty hives. W. H. is so pleased with his success that he is going to start eight hives, if he can. I hope to get two or three farmers and others to start frame hives. I have arranged for getting the timber for the twenty hives sawed at the sawmills, so that I can make them by the use of a tenon saw, a chisel, and a hammer. The bodies are double, 18×14½ inches inside, 2½ inches thick. The cost of the material is two pounds. As this is cheaper than most people get their hives, I shall be glad to give you particulars and drawings.

Now, would you kindly get Mr. Cowan to give information on the following points:—1. How did he get such strong colonies so early in the year: was it by spreading brood, uniting, or doubling? 2. Did he shut off the upper bodies from the brood nest by excluder zinc? 3. How does he treat these huge hives in autumn? 4. I think of devoting B to making comb to supply condemned bees with: how could I put on a dry feeder? 5. I make the stand of my hives similar to Mr. Cowan's, with 3½-inch sides to support the floor-board; I think of setting each on a foundation made of Portland cement: will this answer? In this damp climate sawdust would rot and become a focus of evil. 6. How is the queen found in a swarm; it seems a hopeless search among the thousands of bees all over one another?—A. W. Wallace, M.D.

[The colonies referred to were not doubled or united, but they were made strong by simply spreading the brood. When I took them in hand, in the middle of April, one of them had brood on eight frames, the others all had six frames of brood. I kept these changed about until the space became too crowded, and then added more frames, until the body hive containing the eleven frames was crowded with brood and bees. When I saw that the bees were rather pinched for want of room in some of the hives, I removed some of the frames of brood from centre and put them into an empty hive. The remaining frames were then brought together and frames of empty comb put on each side. The hive into which the frames of brood were put was also filled up with frames of empty comb, and this was placed on the top of first hive. Very soon the hatching brood was filling both hives and the queen was breeding in both these boxes, and as the honey gathering had commenced and the bees were strong enough a third box with frames of empty comb was placed over the other two. This the bees commenced to use as a super, rapidly filling it. A fourth hive was then added above the other three, and this was also used as a store for honey. The four storeys were completely filled with bees, and the two lower ones and part of the third with brood. Of course, to prevent such huge colonies from swarming it was necessary to give the bees plenty of room to fly in and out. The hives were, therefore, raised in front three quarters of an inch high, so that they had free access to the hives on three sides. These hives are all used for extraction, and some of the upper storeys have already been extracted twice. The hives used for sections have two body-boxes and three tiers of sections; that is, sixty-three sections on at a time. The Stewarton was started with two body-boxes, a super was then placed on it, after that a second super, and a body-box underneath. This hive had the sixth super added on 22nd July, in which the bees are already at work; this makes the hive nine storeys high. I would say that, it not being possible to spread brood in a Stewarton so readily as in a frame hive, I several times changed the position of the body-boxes, sometimes putting the top to the bottom, and the bottom to the top. No excluder zinc of any kind was used in any of the hives; and in the Stewarton access was given to supers by side slits, and when the bees had nearly finished one super, all the slides were withdrawn.

In the autumn, when the bees are diminishing in number, the top hive will be removed, then the next, and then the second, only leaving one body-box for winter; the hives always being kept crowded, so as to retain the heat during the cold nights. The bees are in Cowan hives, and are easily enlarged in this way. My apiary can be seen at any time; but we shall very soon begin removing the upper boxes, as the honey is not coming in so fast just now. I would mention that my bees are Cyprians and crossbreds, and that all the queens are selected young and prolific ones.

Put in the dry feeder as directed by Mr. Simmins (page 188, vol. xii., *Bee Journal*).

My floor-boards are set on four bricks, and do not require a foundation of Portland cement. This allows air to circulate under the floor-board, and prevents damp arising.

If you wish to find a queen in a swarm, you should spread a cloth on the ground, and at one end of it prop a hive up with a stone placed under its front edge. You then take hold of the skep containing the swarm, and with a smart jerk throw out all the bees on to the cloth

about a couple of feet from the hive. With a spoon place a few of the bees close to the hive; and these, finding a home so near at hand, will at once crawl towards it, uttering a joyful hum which will attract the others who will quickly follow. Now as the bees are running over the cloth and into the hive, keep a sharp watch, and as soon as the queen is seen going in she can be captured. Do not search over the whole of the cloth, but keep your eyes upon those entering the hive, and it will be difficult to miss the queen.—Thos. Wm. Cowan.]

COUNTY ASSOCIATIONS AND SUNDRY OTHER MATTERS.

'Well, sir, when are you going to give us a weekly *Journal* at a penny?' This was the last question I wrote to poor Mr. Peel, his answer was, 'All in good time. Meanwhile when shall I see your name at the bottom of a communication?' So I put the question now to you: and I want you to give us a 'growler' column when you do make the alteration and have more space at your disposal. There are lots of things that want ventilating. Look at what 'West Midland' and 'Leicesterian' have been saying about County Associations,—and you can scarce wonder at it; they do not come up to the mark at all.

Now let me tell you my idea of what a County Association should be. It should have a good list of ornamental officers. Of course it looks well, and moreover their subscriptions are useful—when you get them (?). A strong representative committee is also requisite. They must be men of mark, well known in public life, but they need not own a bee; and, being once elected, they need not trouble to attend any of the meetings, as the work should always be done by the Hon. Secretary. This latter personage being so important, it is of the very last importance that you should select the proper man. Well, he must be a 'busy man,' with scarcely a minute to live; a man of leisure has 'no time' to work at such things as Associations. Being busy and hard-working, he will of course not be rich,—the two things never go together; like oil and water, they won't mix. And now we come to his duties. The duties of the Hon. Secretary and the Association are synonymous, so I will attempt to enumerate them. He must stump his county to get members; he must not expect members to do so, as it is 'easier said than done.' People don't see it. What are they to get for their money? Having got the members, he must get their subscriptions; this will cost him about five letters each member on an average. Until they come in he must advance money to pay incidental expenses out of his own pocket. If a member says he has paid, and the postal-order has been stolen or never sent (!), he must bear the loss. He must next allot the numbers of the *British Bee Journal* for circulation, write the list on the front page, post them, and that is done with. Ah, dear no! he must jog the members up, or they will not pass them on for six weeks after date; and as to the last member on the list returning them! They always are returned, but those rascally post-office people never take heed of such things to deliver them, what is the use? Shows! yes, let us have plenty of shows and lots of prizes, and good ones, too, worth gaining; there will be lots of gate-money to pay them with, especially if it pours with rain. But shows are not much trouble, and how nice they are! what a rendezvous for bee-keepers, how they show up! And then, you know, you always get a free pass, so that it costs you nothing; one ought to get something for their half-a-crown subscription. We must be careful not to incur much expense over shows. The hon. secretary can very well stage the exhibits; and, to me, I never could see the force of hiring a saleswoman for the sale-counter and charging 1*d.* on the 1*s.* commission on sales to pay her, surely the hon. secretary could see to taking the money for sales. True, he often has [illegible]t as expert, but then he might manage to sell a quantity between the 'displays' in the bee-tent; there is a great deal in 'method' and 'tact.' Some people are everywhere and anywhere at the same time, and always manage with the most perfect method. To such people the help of the committee would be simply a bore, and, besides, if it was not, he would not get it, so that is much the same thing. But most shows have an expert now, they are getting so plentiful there is no trouble to secure the services of either grade, 'fine,' 'superfine,' or 'extra superfine.' But if there is an expert, the secretary should always feel in duty bound to find him an audience for each display in the bee-tent; it is a simple matter, you have only to shout out, 'The next bee-driving in the bee-tent will take place in ten minutes,' and then hurry off to the bee-tent door to take the money. Then comes the packing up and clearing off the unsold to the rail; he can always procure the help of a small boy for a few pence. The members present have had a tiring day and consequently cannot help,—the idea of expecting such a thing! But then you know, sir, the secretary must not expect his duties to end here. He is in a very favourable position to sell lots of honey for the members, he can get lots and forward them on to customers; and if the railway smashers finish off the whole lot so that the customer refuses to take it, well, that is rather awkward for the hon. secretary, but he cannot expect the poor cottager, who is a member of the Association, to bear the loss; the secretary is a gentleman and it won't hurt him!

Then there are the arraugements for the expert's visits: he ought to arrange them differently, so as to give each member more time; and then what is the use of his coming so late that the bees are dead for want of food in spring? But one visit is scarce enough; he ought to come and fold the sections, and fix the foundation, and place on the super crates; and I know he would be of great service if he could only be handy when it is time to take them off, bees are generally so savage just at that time, and to me the expert never seems to mind being stung. I suppose one gets used to it in course of time; and as for extracting, that is the job of all others members dislike most as a rule; I really think the expert ought to be sent round to do that and put the hives right for winter. He need not be sent all over the county, as the hon. secretary might do his own district near home very well. Well, sir, you won't find me much more room until you get your weekly issue. I have said enough, I am sure, to give you an idea of what a hon. secretary should be, and what are his duties; there is here and there a solitary one that partly comes up to this ideal. I know one that writes in spring time about one hundred letters a-week for his Association, and stops up until midnight to get through them, acts as judge, spends his holidays in stumping his county, holds quarterly conferences in several parts of his county, writes for the *Journal*, keeps lots of the old women bee-keepers' bees in order, advances money, buys honey and sells it again and never gets paid himself, finds time to lend a hand to the parent Association, although he is not on her Committee, looks after the experts. But even he fails in some things. He does not find extractors, and smokers, and gloves, and veils in every village in his county; and I think he ought to do so. To be sure, many of his members are always in arrears with their subscriptions, some of the defaulters being vice-presidents, &c.; but then you know there is much in an 'honour,' and a Hon. Secretary has a very honorary post. I wish I could get the job, I would soon cease to be an—Amateur Expert.

[We hope our correspondent will get the post which is the acmé of his ambition, and that he will find it to be a bed of roses.—Ed.]

COUNTY ASSOCIATIONS.—ANONYMOUS LETTERS.

With your kind permission I wish to draw attention to certain letters which have lately appeared in the *B. B. J.* under the above heading.

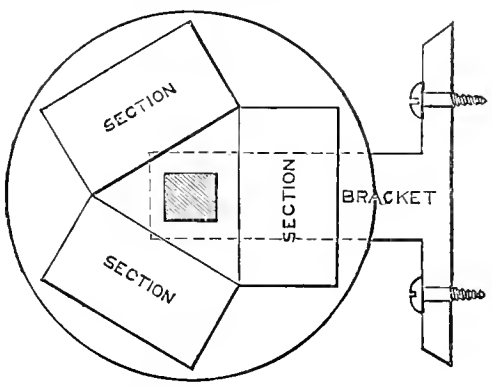
On the substance of these letters I have no comment to make; I merely wish to inquire why the writers do not put their own names to their letters, like English gentlemen. When I read an anonymous growl like that signed 'βοῦς,' I can only come to one of two conclusions, either that for some reason the writer is ashamed of his name, or that the contents of his letter cannot be substantiated.

As hon. sec. of various societies of different kinds, I have occasionally succeeded in running one of these anonymous growlers to ground, and I have invariably found them to be persons who either do not subscribe at all, or who in return for a paltry shilling or half-a-crown expect a good ten shillings' worth, with the right to growl out of sight, and the privilege of doing nothing for the good of the Society.

Will the good time ever come, sir, when editors will afford to dispense with all anonymous letters, and cease to patronise cowards who seek to wound or injure where they have not the courage to stand up and fight like men?—J. Lingen Seager, *The Grange, Stevenage.*

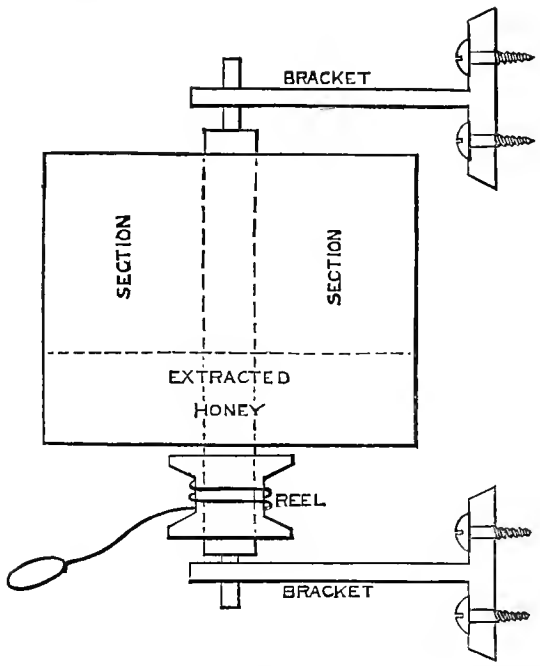
Dr. WRAY'S 'MEL-PEL.'

I have much pleasure in sending you, as requested, the following description of the three forms of my newly invented, and provisionally protected, honey extractor, or '*Mel-pel*' (*i.e.* '*honey-expeller*'), exhibited at the Conversazione of the B. B. K. A., held on the 22nd. This acts—upon the familiar principle of the toy 'windmill'—in producing revolutions first in one direction, and then in the other, by pulling a string coiled round a reel, through the middle of which passes an axis that carries also a tin case holding the sections or frames. The axis, which is of wood, has at each end an iron pin working either in a double metal bracket fixed to an upright post, or in an iron frame screwed to a level surface, such as a table or floor.



1. The smallest and simplest Mel-pel holds three 1-lb. sections arranged in a triangle within a cylindrical tin case, having a fixed watertight bottom and moveable lid. Through the centre of this case, both top and bottom, and fixed to the bottom, passes a tube fitting to the axis, which is made square, so that when the axis revolves the case and sections are carried with it, and the centrifugal force thus produced ejects the honey from the outer side of the comb, previously uncapped in the ordinary way. The sections stand upon a stool which keeps them from the bottom, so as to leave space below for the honey falling to the bottom. This space holds fully 3 lbs., the contents of the three sections Below the case, and embracing the axis, is a wooden reel to which is attached and wound a few feet of string. This, when pulled, causes the axis, case, and sections to revolve; and when the string is pulled its full length, the case will continue to turn until the string is re-wound, but in the opposite direction. The speed can be varied to any degree; and care must be taken to begin each pull very gently, and to allow the speed to exhaust itself gradually, so that the Mel-pel is stationary before the next pull is given.

The engraving is a sketch of this form, being about one-quarter of the actual size.



2. The next form of Mel-pel is made so as to hold either three 2-lb. sections, or four of 1 lb. It differs moreover, from the former in containing below a separate stationary receiver for the honey: the socket, in which the lower pin of the axis turns, being fixed in the centre of this receiver; whilst the upper pin works in the middle of an iron frame spanning the whole, with one leg fixed, on each side of the receiver, to a table or other horizontal support. The top of this frame opens and closes on a hinge, enabling the operator to adjust and empty the '*Mel-pel.*'

In this case the reel is placed *above* the case (instead of below, as in No. 1), and the watertight bottom is replaced by an open cross-piece, allowing the honey to fall through it into the receiver, which has a spout to discharge below.

3. This is similar to No. 2, except in being adapted to bar-frames. Of these it holds two, placed on end so that the projecting limb at one end of the top-bar passes through, and is thus secured within, a hole in the bottom cross-piece; whilst the other projecting limb passes through a corresponding hole in the lid, which thus holds it in its place.—G. O. Wray, LL.D., *Bedford, 25th July*, 1885.

BEES CROSSING THE SEA.

If your readers would like a little gossip about bees, I think an incident connected with a swarm would be likely to interest them.

In this island of Valentia, from which my story emanates, I had a strong stock of bees in a large flat-topped straw skep. On the 20th of June last they sent

off a good large swarm, which alighted in a fuchsia hedge about twenty yards from the hive. I captured them, and they are now at work well in a bar-frame hive. They have nearly filled seven frames, and I have just given them two more behind an excluder dummy. On the 28th of June the same stock started off a second swarm, which settled in a fuchsia hedge close to the hive. These are now at work in a bar-frame hive. Perhaps here, by way of parenthesis, I may say that the fuchsia grows most luxuriously in Valentia, and here are miles of fuchsia hedges now in full flower to the great delight of the bees. When I speak of hedges I don't mean hedges with some fuchsias in here and there, but they are composed entirely of this beautiful plant. And to return to my story. Two days after the second swarm the same bees sent off a good cast. Instead of hovering over the fuchsias, as did the others, these sailed off at once in a straight line down by a bank bordering the garden, on still straight by the same bank bordering a field, until they reached the arm of the sea which divides this island from the mainland. They still continued their onward course in a direct line, and were off across the sea! The distance of the parent hive from the sea is nearly a quarter of a mile. On my asking an old boatman how far he thought it was across he said, 'Oh! more power to the bees, 'tis every step of a mile and a half, and I believe 'tis more.'

I have heard of bees going a long distance by land, but never before heard of their crossing the sea. I wonder if your readers ever knew of a similar case? After about forty years' experience with bees I am pretty well acquainted with their 'manners and customs,' and I am quite sure their strange flight was the result of forethought, and not merely a momentary impulse. They did not pause a moment in their flight, but went off as men do who have a definite object in view. Thinking they would turn back I had a look-out kept to the right and left of their point of embarcation, but they did not turn. We followed them as fast as we could in our boat, thinking they would alight as soon as they reached the mainland. Of course it took some time to row back a distance, and after a diligent search no trace of them could be found. The next day we heard that a country boy had seen them settling in a tree about a mile inland. Again the following day they were seen still another mile inland, and near to the town of Cahirciveen, but they could not be recovered. The fields to which they crossed are pretty well covered with white clover, and my opinion is that some of the bees had previously visited the clover and had made up their minds to conduct their new queen to this new country.—C. C. Pilfold.

REMOVING SECTIONS.

I write to point out two happy misses I have had of unfortunate results connected with removing sections. I commenced this season by following the advice given on page 202 in 'Useful Hints' concerning removing crates. I followed out the hint exactly; when replacing the crate I was attracted by the excitement and exclamations of my little boy, who had accidentally spied, crawling on the walk between the 'quiet shady spot' and the hive, the queen. Of course I took her back to the hive, and in she walked. The explanation seems to be that she had walked on to the frames when the hive was smoked, and thence on to the bottom of the sections or crate, had been carried to the shady spot, had been tumbled about unobserved during the changing of the sections, and had finally fallen to the ground on the crate's being carried back to be replaced. This same thing has happened twice with different hives on different days. This seems to me to be a serious risk to run when removing sections. I should be glad to hear whether others have experienced a similar disaster or have within a week or two of the work found the hive queenless.

I have since the second occurrence removed sections *without* removing the crate from its place, and have experienced no difficulty in doing so, notwithstanding the misfortune described on page 230 in last *Journal*. The only disadvantage in this method seems to be that it does not give an opportunity of looking over the frames, if this is wished.—R. E. C.

HONEY-DEW.

In my neighbourhood the oaks are completely covered with honey dew; nearly all clover honey has been spoiled with this abominable stuff; my bees collect it to the exclusion of almost every other source. It is very annoying to see large trees of lime hardly visited at all by the honey bee, while their more sensible cousins, the various species of humble bees, are collecting the pure nectar. I never remember the honey dews so heavy and abundant as this year; the liquid in some instances I have noted trickles off the leaves and literally saturates the ground beneath. I should fancy the 'dew' deposited by the oak aphis is darker in colour than that deposited by any other aphid. Certainly I can produce a beautiful sample of the blackest of black aphidean honey, which is almost the colour of ink. My hives are full of it.

This should be a glorious season for those ancient bee-keepers who aver that nothing beats a summer prolific in honey-dews for a surplus of honey. Is there any commercial, domestic, or any other use for this black abomination?—Henry Dobbie, *Thickthorn, Norwich, July 21st.*

CURE FOR STINGS.

Many of your readers will be pleased to know that by washing their hands in vinegar, and allowing it to dry on, when handling bees, they will escape being stung; at least, I have tried it many times, always with satisfactory results. The vinegar used was from Hill, Evans, & Co., Worcester, F. quality.—R. Franks, *Ironbridge, July 16.*

VARIEGATED ARABIS AND FRENCH HONEYSUCKLE.

I take the opportunity to call the attention of the readers of the *Journal* to a plant that should be grown by every bee-keeper, and I am a little surprised that it has not been noticed before; but perhaps its general scarcity would account for it not being mentioned. The plant which I would call especial attention to is *variegated Arabis*. It comes into bloom just as the old green-foliaged arabis bloom is fading away, and remains a considerable time in bloom longer than the common white. It is very useful for bedding out or hedging purposes, grows very even, and does not spread so fast as the common. Coming into flower as the other dies out it thus affords a valuable succession of early bee forage that no other plant supplies at that time of year, and I would strongly advise bee-keepers to cultivate it. It supplies a good quantity of honey, and my bees worked upon it very much at the commencement of June during the dull weather that then prevailed. To grow variegated arabis to perfection it must not be planted in very rich soil, or the pretty foliage will change to the common green colour.

French Honeysuckle.—As the autumn advances I shall supply those orders for seed that I have on hand, and which I could not supply at the commencement of the year. The orders will be sent in rotation; and to bloom next year it should be sown as soon as received on a hot-bed, receiving frame protection during the winter. The young plants can be planted out about the end of April to where they are required to bloom. Those that

cannot treat them as above, would find it to their advantage to get the plants and plant at once. I shall be pleased to know if any have changed their addresses.—W. Hollins, *Tillington Avenue, Stafford.*

SHOWS AND BEE-TENT ENGAGEMENTS.

Nottinghamshire.—Aug. 3, Mansfield; 11, Willoughby-on-the-Wolds; 26, Retford; Sept. 2, Clarborough; 22, Radcliffe-on-Trent.

Worcestershire.—Aug. 3, Kingsnorton; 5, Astwood Bank; 6, Blackmore Park; 15, Kidderminster; 18, Madresfield Court; 20, 21, Annual Show, Worcester.

Buckinghamshire.—Aug. 3, Colnbrook, entries close July 24; 19, High Wycombe, entries close Aug. 10.

Warwickshire.—Aug. 3, Alcester; 12, Erdington; Sept. 2, 3, County Show, Leamington; 8, Bedworth.

Essex.—Aug. 12, Harlow.

Glamorganshire.—Aug. 5, 6, Neath.

Surrey.—Aug. 12, Lower Cheam House, Sutton.

Shropshire.—Aug. 19, 20, Quarry, Shrewsbury.

Hampshire.—Aug. 1 & 3, Southampton.

Aberdare.—Aug. 13.

Somersetshire.—Aug. 3, Twerton-on-Avon; 6, South Petherton; 13, Nunnery; 17, Street; 20, North Perrott; Sept. 9, Banwell, near Weston-super-Mare.

Echoes from the Hives.

Sunningdale, Berks.—Perhaps the names of the following shrubs and trees may be of interest to some of the readers of the *B. B. Journal*, as they seem to be much sought after by bees for forage. My bees have been working in them all day long for the last few weeks. I have put them in the order in which they blossomed:—Holly trees, black spruce, cotoneaster, the snowy mespilus (snowberry), kalmia. They have been gathering pollen from lupins (blue and white), garden poppies, Canterbury bells, escholzia, single old-fashioned garden roses, and have gone home laden.—F. G.

Neath, Glamorganshire.—A stock of driven bees has already given me 80 lbs. extracted honey, and our harvest is just beginning, as blackberries form the staple supply.—E. G.

Rusper, Horsham, July 15.—The bees have been working splendidly here. From one hive with only nine combs I have already obtained 35 lbs. 2 oz. from the supers, and 19 lbs. 8 oz. from below. Two other hives are also doing very well, but not equal to the above.—A. F. Parbury.

Honey Cott, Weston, Leamington, July 21.—Almost immediately after my last echo we had a favourable change in the weather, and the honey came rolling in, and made quite a change in the apiary, though at the present time flowers are fading for want of rain, which has threatened for several days, but scarcely any has fallen here. On the whole, I think we may reckon the honey flow has been up to the average of this last few years.—John Walton.

Bishops Waltham, Hants, July 22.—The weather keeps lovely, and the bees are working well and carrying in honey fast, chiefly from the limes and buckwheat; swarms are few, and I think and hope we may have a very successful finish up of the season.—A Hampshire Bee-keeper.

Hunts, Somersham, July 24th.—The delightful weather with which July opened has continued, with the exception of two days when rain fell, up to now. Our honey flow, as usual, ceased with June, but it has been coming in in fair quantity since. Limes have been splendid, but are now nearly over. They have been much visited by bees, although in the early morning they seemed to show a decided preference for the 'honeydew' which has been too plentiful. The blackberry is now in full bloom. I have found my bees working well on it during past years, but never yet have I been able to notice dark honey in my hives; so I am led to conclude, with the writer of 'Useful Hints,' that an error has been made in saying that honey from that source is black. I was walking through the fen on June 26 with a farmer, and could not help exclaiming, 'How delightful! Here apparently is a never-ending supply of forage for bees; oh, that mine were here, instead of pining for more work at home!' I saw what I thought to be three splendid fields of mustard; but judge of my surprise when I was told that I was mistaken. Although in the distance they looked when in bloom like mustard, they were in reality fields of barley and oats; but nothing was to be seen but charlock. The quantity of honey gathered in the fens has been immense, but unfortunately it is all in skeps. I hope, should this meet the eye of the members of our Association, that they will endeavour to attend our Annual Show at St. Neots on August 3rd. It promises to be one of the best yet held.—C. N. White, *Hon. Sec., Hunts B. K. A.*

South Cornwall, July 27th.—Through press of occupations I omitted to send you my usual few lines for your last mid-monthly number, and now I almost fear I may be too late for August 1st. This time it is the bees. But had I written at the end of June I could only have echoed the complaints of so many correspondents about the weather. As to this I may say that I had to feed two swarms on midsummer day, and if our friend Mr. Griffin (to whom felicitations) could find time just now to give us a meteorological report I fancy it would show that the temperature of this summer to the end of June was of unusually low average *per diem*. But with July better prospects opened, and, with the exception of two or three dull days, we have had a rare time of it indeed. The season is late, but rapid. Swarming has been late all round, and for myself I am satisfied that I have had too many proofs that when the swarming fit is on nothing will stop it—for two or three attempts at least. It runs its time, like a fever, spite of queen-cells removed and supers supplied. Sections half filled have been more than once deserted. But the young brood have done wonders. A cottager slung 25 lbs. on Saturday last from a doubled hive, and my best crate of twenty-one sections, which I hope to exhibit to-morrow at our St. Austell show, is from a swarm of June 1st in an Abbott's Combination hive. For three or four days the weather has been too hot for work, and bees hang in clusters, though they have ample room indoors and in the atties, which have to be furnished on emergency with all sorts of make-shift devices. Clover, like the corn, is some ten days late, which suits the season admirably; and with it, self-heal (*Prunella vulgaris*) is much frequented. Surely we ought to reduce the amount of imports.—C. R. S.

Brentwood, Essex, July 28.—During the last week honey has been coming in slowly, but the season as yet has been very good with me. Up to the present I have taken 48 lbs., 22 lbs., and 11 lbs.—81 lbs. from three hives.—L. B.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Captain Revington.—*Bees stinging when Swarming.*—As it is very unusual for bees to sting at that time it is highly probable that the soft soap on your hands was the exciting cause, especially as after washing you handled them with impunity.

Busy Bee.—*Simmins' Feeders.*—The feeders are especially suited for autumn feeding. The syrup is more likely to crystallise after boiling than without, for the simple reason that a large proportion of the water is expelled under the process.

A. F. Parbury.—*Dark-coloured Honey.*—Your bees have been collecting honey-dew, alias *excreta* of the insects called aphides, which abound almost everywhere, and is spoiling a great deal of honey. The foliage of most trees in our neighbourhood is affected by it under the name of 'blight,' but at present our bees having other forage, have refused to collect it. We find the black bees more inclined to store this nauseous stuff than the Italian and Eastern races. So far as we know there is no remedy. In long droughts, especially when easterly winds prevail, this pest of 'honey-dew' usually appears. The leading bee-keepers in America consider it almost poisonous to bees, as it causes dysentery. There the aphides are called 'tree-lice,' and their *excreta* 'bug-juice.' It is not honoured with the name of honey. Extract, ripen, and sell. Afterwards feed on sugar syrup.

John A. Balmer, *Paris, Illinois.*—1. *Does Bee-keeping as a Business pay in England?*—Yes. If you secure a good district with a succession of various kinds of bloom, and vigilantly watch over your stocks with careful and skilful management. Those who deal in bee-appliances, or breed queens for sale, make a fairly remunerative business of it. We would not advise starting near the moors unless there were also the early blooms, such as fruit, clover, &c., to assist breeding up strong colonies for the collection of honey from the heather, which is very destructive to bee-life, causing strong stocks to rapidly dwindle through the sudden changes in the temperature at that late season of the year. We should prefer for locality the Midlands or the South, but the heat in the latter sometimes causes the bloom to quickly dry up, yet it assists breeding more than in the northern parts of this island. 2. *Average Yield.*—We consider about twenty-five to thirty pounds of honey is an average yield from a quantity of strong colonies.

R. Basset. — The honey has an unpleasant taste. It is lime honey contaminated with an admixture of honey-dew.

R. A. P. — *Asparagus Pollen and Honey.* — The flowers of asparagus furnish pollen of a bright orange colour, as also does mignonette. We should class the asparagus as a second-class honey-yielding plant; as to quality we are unable to furnish any information further than it is of a very light straw colour.

R. W. Machin.—Messrs. Howard, of Holme, Peterborough, and W. Meadows, of Syston, near Leicester, are the makers of the various forms of Mr. Simmins' dry feeders. The receipt of Mr. Hewitt's wintering candy will be found in vol. xi. p. 119.

Broadwell.—*Unsealed Honey.*—The honey will not keep in unsealed sections. They might have been left on the hive, and would have been sealed, during your absence from home. We advise you to return them to the hive. If you prefer not to do this, the only other plan is to extract them and to ripen the honey by heating it to about 90° Fahr.

Edward C. Davies. — *Moving Bees two hundred Yards.*—If you drive your bees, and pour them from one skep to another, they may be removed the distance mentioned, and will not show any desire to return to their former locality.

A. E. S.—1. *Removing Bees from Glass Supers.*—You may shut the super in a dark box, and occasionally open it to let the bees out until all are gone, or use a box fitted with a bee-trap, so that they can get out, but not in. 2. *Bees building Combs upwards in Glass Supers.*—Before putting on glasses they should be coated with wax by warming the glass, pouring a little melted wax in and turning about so as to leave a thin coat. This gives the bees foothold, and a good surface from which to build. The moisture on the glass was condensed through its not being kept warm enough.

Anon.—1. *Transferring from Skep and from odd-sized Bar-frame to Standard-frame Hives.*—Cut out the combs and tie them into the frames. The method of doing it was recently described in our replies. 2. *Driven Stocks.*—It is not necessary to find and remove any queens, as they will fight it out among themselves and the strongest will survive. It is usual, however, to retain the young queens, and destroy the old ones.

J. G. W., *Stafford.*—1. If your swarm complete their super while there is yet honey coming in, you may by giving them the partially filled one from your other hive get it filled. 2. Yes; you can frequently get bees to accept a super by driving them into it. 3. We should not recommend a shed. We prefer each hive to stand on a separate stand, and covered with its own roof. 4. *Uniting a Cast.*—If you united your cast and swarm now, your super would be better and more quickly filled.

H. J. S., *Westham, near Hastings.—A Small Queen.*—Your queen was exceedingly small, though I can hardly say of her as you do, 'the smallest I ever saw.' She was, in fact, neither truly a queen, nor truly a worker, but a bit of both. Spermatheca very small, but full of spermatozoa, so that she had mated rightly enough, but abdomen more hairy, legs smaller, tongue longer than those of a true queen. I have no doubt her glandular structures partake of the form proper to the worker, but the dissection of these I cannot undertake for a day or two. Such cases are extremely instructive. I apprehend from your letter that the stock in which she was raised swarmed naturally; if I am wrong here a post-card would much oblige.—F. C.

B. J. B., *Great Haywood.*—The combs are affected with *Bacillus alvei* rather badly. Honey is not damaging to human beings if taken from a diseased hive, but it often carries traces of the nauseous odour, which is not appetising. When boiled and thinned it may be used as bee food. The best means for preventing the spread of the malady is to cure the infected stock.—F. C.

R. Hough.—1. *Dead Queen.*—You ask whether your queen is Ligurian. Queens vary much in colour even when pure. After death they change and darken, so that it is not possible to give an opinion with any definiteness. 2. *Transferring.*—Do not attempt to transfer yet. The combs are tender and the weather warm, you must at least wait until more brood has been raised in them and the temperature lower. It might be even desirable to leave the whole thing to next spring.—F. C.

A. H., *Donegal.—Diseased Queen and Comb.*—Examined queen and worker microscopically, both badly diseased. Examined comb with my nose at a distance; it is in a terrible state. The hive should be disinfected at once and put out of the way of bees, or it may spread *Bac. alvei* far and wide.—F. C.

A. F. Phillipps.—*Removing Super.*—The best plan of removing your super is to take it off the hive, about noon on a bright fine day, quietly but quickly, with as little disturbance as possible, and to carry it to a dark corner, or outhouse, when, if there be no brood or queen in it, very few bees will be found. The super should then be placed on the ground, and raised a little on one side, to allow the bees to fly to a crevice of the door, left partly open, when they will soon desert the super. The glass part of the super must be darkened. If performed in the garden, a sack may be thrown over the super and the bees left to depart, but watchfulness must be exercised to prevent robbing. The tops of supers should be moveable. The bees may then be quickly brushed off the combs with a feather.

If there be many bees, or brood, in the super, and they refuse to leave it, return the super to the hive until the brood is hatched, or the queen has retired below, and then try again.

R. CARTER.—*Carbolic Acid.—Calvert's Carbolic acid* appears to be a very indefinite term. 1st. Calvert's ordinary disinfecting carbolic—which is, we find, that which we ourselves use—is sold at the stores at 7½*d.* per 8 oz., or 2*s.* 6*d.* per half gallon. 2nd. Calvert's No. 1, stated to be 'for internal use,' has been recommended to us as a bee-quieter by a chemical friend, who states that a solution of 1 in 40 would be of sufficient strength, and that the addition of a little glycerine will cause a perfect mixture of the carbolic acid with the water. The quoted price of No. 1 is 1*s.* per ounce. We have found the *ordinary disinfecting carbolic* to answer every purpose as a bee-quieter, and refer you to the statement in 'Useful Hints'—p. 217 of our issue of July 1st, 1885—in which for the word '*strongest*' read '*ordinary*.' This solution, of 2 oz. to a quart of water, with the addition of a little glycerine, will answer your purpose; but we do not recommend the application of this to the *face*, nor to the hands, unless hardened by exposure to the weather, when it will do no harm. When the skin is broken it must never be applied. To use it on so tender a part as the face would be simple madness. Use a veil for the purpose you state.

C. B.—The insect found by you in your hive was the death's head moth (*Acherontia atropos*). It is found very frequently in potato-fields, and for some unexplainable reason is permitted by bees to enter into and plunder their hives with impunity.

NOVICE.—*Packing Honey in Sections.*—See 'Useful Hints,' p. 246.

T. W. Y.—*Leaf-cutter Bee.*—Your geranium petals are being cut by one of the leaf-cutter bees (*Megachile*). There are seven British species. If one of them could be netted while in the act, it would be extremely interesting to note the species, as the cutting of geranium petals is certainly very unusual.—F. C.

J. H. FORG.—*Dead Drone and Immature Queen.*—The drone enclosed has died from the extrusion of its organs, and has not mated. This fatal extrusion occurs in numbers of cases, and perhaps a dozen instances of it might be found at this season even in a small apiary by seeking for drones lying about near the hives late in the afternoon of a hot day. If three or four drones be held in the hollow of the hand for a few minutes it will be strange if this extrusion does not occur to at least one of them. It may be brought about artificially by gently pinching the abdomen on its upper side near the base. The accompanying bee is a partly matured queen.—F. C.

J. F. ANDERSON.—*Condemned Bees.*—When driving the bees, note which is a first swarm and which a second, and in the ensuing operation destroy the queen of the first swarm, and retain that of the second. Drive each colony separately into an empty skep. In the evening, when you have the bees at home turn up the skep from which you wish to remove the queen. The bees will move around the skep—but will not fly—and you can readily pick out the queen. A feather may be used for separating the bees until you find the queen. When the queen is removed set down the skep, mouth downwards. Now wedge up, in front, the frame-hive, which the united colonies are to occupy, on a large board or a newspaper, and shake out of the skep the other colony possessed of a queen close to the raised hive. When about half the bees have entered the frame-hive shake out, *upon* those bees which are still running in, the bees from which you have removed the queen, and all will unite peacefully and run in together. Use no smoke nor intimidation of any kind, neither scented syrup, &c. Brushing up the bees with a feather, moistened with carbolic solution, will hasten their entrance to the hive, but use it sparingly. No fighting will take place. We have peacefully united hundreds of colonies by this method alone, and without the use of smoke or syrup. The bees are very quiet under the operation, and we do not ever remember being stung, except when crushing a bee, albeit we use in this case neither veil nor gloves. The previous driving of the bees, and depriving them of their combs and brood, renders them harmless and submissive.

REV. W. M.—*Limes and Blackberries.*—Our querist wishes to know the *character* and *colour* of honey collected from the above-mentioned sources, and regrets that Mr. Griffin, in his pamphlet on 'Honey and Wax,' makes no mention of these. Will any of our correspondents or readers give us their views and experience on the subject? Or can Mr. Griffin enlighten us? From our own experience, we have always thought the lime-honey to be of a rich golden colour—darker, considerably, than fruit-bloom, or white clover honey. That collected from blackberries, we have always supposed to be light in colour—similar to raspberry honey—rather rich in flavour, but having little aroma, and the quantity small, the plant being frequented by the bees chiefly for its pollen, which is of a bright purple colour. Will our querist give us his own views on the subject? We know that blackberries abound in his neighbourhood, and at this time of the year furnish abundant forage for the bees, and there is no plant to which they seem more devoted.

MISS NEVILLE.—1. *Latest date of Natural Swarming.*—End of July, or sometimes under favourable circumstances as to food, &c., first or even second week in August. Langstroth states that he had a 'buckwheat swarm' on the 16th of September. 2. *Best time of day for handling Bees in August.*—When honey is coming in, the middle of the day; when there is none, towards the evening. 3. *Gloves to prevent Stings.*—It is possible for the stings of bees to penetrate India-rubber gloves. Thick hand-knitted cotton gloves, over which is worn a pair of gauntleted berlins, are a sure protection; bees cannot sting through both gloves; and when they are wetted will not attempt to do it.

LINCOLN BILL.—1. *Emptying partly-filled Sections.*—You may extract the honey and feed with it, or you may leave them on the hive, and when the yield is over the bees will remove the honey to the lower hive. 2. *Stores for Wintering.*—If you leave one full frame of sealed food on each side of the cluster, these with the food contained in the frames in the centre will be sufficient.

J. T. M.—*Doubling.*—1. If instead of adding a third storey you had extracted all the honey from the second one, or removed that and substituted another, you would have done better. You can safely extract before the seals are actually complete. When they are commenced from the edges of the cells the honey is ripe enough. 2. *Honey Ripener.*—This is useful when you have thin and watery honey, but the application of heat spoils the fine aroma which naturally ripened honey possesses.—3. *Size of Frame.*—It is not of much importance, but as the Standard size is fixed it is better to keep to it. 4. *Extractors and Wide-shouldered Frames.*—You can cut a space in the wire-cage to take the shoulder, or you can use Dr. Pine's removable ends, which were inserted for the purpose among others of allowing the frames to lie against the cage. 5. *Wired Foundation.*—Those who have used it find no objection to it.

*** *Though we have given a Supplement of four pages, we have been obliged to postpone several articles. Berkshire, Norton, and Finchley Shows are in type; also some communications from Cape Colony, Australia, and the United States. The communication of* THETA *(to whom our thanks) reached us too late for insertion. Several queries will be answered privately.*

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WILTS HORTICULTURAL SOCIETY.

IN CONNEXION WITH THE ABOVE THE

WILTS BEE-KEEPERS' ASSOCIATION

WILL HOLD THEIR

ANNUAL SHOW

OF

BEES, HIVES, HONEY, &c.

AND A HONEY FAIR,

In the Palace Gardens, Salisbury

(By kind permission of the Lord Bishop of Salisbury),

ON THURSDAY, AUGUST 20th, 1885.

PRACTICAL ILLUSTRATIONS OF THE METHOD OF DRIVING BEES, MAKING ARTIFICIAL SWARMS, &c., WILL BE GIVEN AT INTERVALS DURING THE DAY.

N.B.—Donations to the Prize Fund are earnestly solicited.

Among the Prizes offered will be the Silver and Bronze Medals and Certificates of the British Bee-keepers' Association, and Three Bar-frame Hives.

At the same time an Examination for Third-class Expert's Certificates will be held by the British Bee-keepers' Association who will kindly appoint one of the Judges.

For Schedules of Prizes and Conditions apply to Hon. Sec., Rev. W. E. BURKITT, Buttermere, Hungerford.

ENTRIES CLOSE AUGUST 6th.

North East of Ireland

BEE-KEEPERS' ASSOCIATION.

SECOND ANNUAL SHOW OF

BEES, BEE APPLIANCES, and HONEY,

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SEPTEMBER 11, 1885.

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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

[No. 176. VOL. XIII.] AUGUST 15, 1885. [PUBLISHED FORTNIGHTLY.]

Editorial, Notices, &c.

TO THE SUBSCRIBERS OF THE *BRITISH BEE JOURNAL.*

You have already been informed that I have acceded to the request to succeed the late lamented Rev. H. R. Peel in the duties of Editor of the *British Bee Journal*. Being conscious of the responsibilities attending the Editorship, I feel I cannot do better than follow in his footsteps, and give effect to his wishes by carrying on the *Journal* in the interest of bee-keepers. It will be my object and endeavour to advocate every interest and measure calculated to advance bee-keeping, and to give expression to the views and thoughts of bee-keepers throughout the world. Free exchange of opinion on all matters connected with bee-keeping will be encouraged; but no personalities, or anything likely to injure any one, will be allowed.

I have to thank those well-known bee-keepers and writers who have already promised me their assistance and co-operation, and trust that, with their aid, the *Journal* will maintain the position which it has attained of the leading bee-paper in this country, and that it will be a standard of authority upon all subjects, both scientific and practical, of which it treats, so that the experienced as well as the novice may rely upon it with implicit confidence.

It will continue to be the recognised organ of the British Bee-keepers' Association and of affiliated County Associations, and their objects will be advocated. Every endeavour will be made to obtain 'Answers to Queries' from the latest and most reliable authorities.

All communications relating to subscriptions and advertisements must be made to Mr. John Huckle, King's Langley, Herts; and letters for the Editorial Department—Reports, Echoes, Queries, and other correspondence—to the Editor, care of Messrs. Strangeways, Tower Street, St. Martin's Lane.

Messrs. Kent & Co. will continue to be the publishers, and the *Journal* will be obtainable from all news-vendors.

Trusting to receive the support of all bee-keepers,

I remain, yours truly,

THOS. WM. COWAN.

Comptons Lea, Horsham, 6th August.

USEFUL HINTS.

REMOVING SUPERS.—Except in the heather districts it is best at once to remove all supers. The income of honey during the last fortnight has been simply *nil* in most parts, and supers allowed to remain on the hives under such conditions, the weather being cold, wet, and stormy, are injurious to the bees, keeping the hive cool and preventing breeding, which should be encouraged by all means up to the middle of next month. Unfinished sections should be passed through the extractor, and afterwards placed in racks and given to strong colonies to be cleaned before stowing away for the winter. If placed on the hives in the evening they may be removed the following evening. The middle of a fine day is the best time to remove supers. Let it be done quickly, and let the hive be carefully covered immediately, to prevent even the semblance of robbing. After removing the entire case of sections, as formerly advised, be careful, in separating the sections, to keep a watch for the queen, as she may, by chance, be there, although in our experience not once in five hundred times.

'R. E. C.,' in his letter on removing sections in our last issue, when he mentions having removed the queen also, erred in smoking his bees at the *entrance* of the hive—the very plan to drive bees and queens up into the super. We always advise *no smoking* at the *entrance*, but a few whiffs between hive and super, which drive the bees *down* instead of *up*. If this be done, when bees are working hard in the fields, the sections will be found almost free from *bees*, as well as *queen*. In removing many hundreds of supers thus we have never lost a queen and only once or twice removed one. Set the removed super on wedges, to avoid crushing a simple bee. Practice and experience alone will teach. It is well, perhaps, to brush off the few bees from the sections into a box, to be carried back to the hive, at this season, when young bees might be chilled. Take the sections indoors immediately on removal. Robber bees are very much on the alert now, and the greatest care is requisite to avoid all temptation to appropriate the property of others. Do not attempt to remove supers in dull, cloudy, cool, or showery weather, when many bees are at home and irritable. Better to wait even a week for a suitable day.

EXTRACTING.—When it is required to extract from the body of the hive, let the outside, or back

combs, be removed at evening, and their places supplied by empty frames, or strips of wood, to prevent the exit or entrance of bees. When extracted, the combs may be returned on the following night, to be cleaned by the bees; and, finally, removed and stored, when closing up the hives for winter. In the case of colonies not very populous it will be advantageous to close up to, say, eight frames as early as possible, and to feed moderately, in order to encourage breeding before the season closes. For the present retain the enamel cloth over the frames, with the same end in view. Later on it will be necessary to remove this, and to supply the winter quilt.

Robbing.—Bees are already showing a decided inclination to rob, and it is of the utmost importance to prevent a *beginning*. The Eastern races are far more prone to robbing than the English, and woe be to the poor 'blacks' if once attacked! So adroitly do these yellow-jackets fight, and so perseveringly do they attack, that the blacks have not the ghost of a chance against them.

Too much care cannot be exercised in removing supers, combs for extraction, or, indeed, in performing any operation which necessitates the opening of hives, during the ensuing five or six weeks. Except for removing supers, such operations are best performed at evening, when the bees have ceased to work. Littering about of bits of comb, spilling of syrup, &c., must be carefully avoided. So easy is it to excite to robbing; so difficult to check it when once established! We have known whole apiaries destroyed by robbing, carelessly induced, and men and animals in danger of their lives. When a beginning has unfortunately been made, strips of felt, tacked or gummed around the entrance of the hive attacked, and saturated with pure carbolic acid twice daily, the entrance being contracted to the passage of a single bee, have proved more effective with us than other plans. Whenever an inclination to pilfering is observed, the entrances of all hives must be immediately contracted.

Feeding.—Colonies requiring food should be fed at night, the time least conducive to robbing, since the excitement caused by the food will have calmed down by the following morning. Food should be given either in the interior of the hive, or at the top by means of the feed-hole, and the feeder carefully covered.

Warm syrup will be appreciated by the bees, but care must be taken to avoid spilling the food, which is often the cause of raids.

The quantity supplied must, of course, depend upon circumstances.

If combs have been extracted close up to the brood-nest, in order to provide a winter's supply the feeding must be copious. A strong colony should be wintered on from eight to ten standard frames, and these frames should have about two-thirds of their surface sealed food, having sufficient bees to cover well the combs. And this should be accomplished by the end of September, the time at which we prefer to cease feeding, and to prepare or winter quarters.

The present time is somewhat early for supplying winter stores, and gentle stimulation for the next two or three weeks, previous to feeding largely, will be advisable, except where sealed stores on which to place condemned bees are required.

Our object now should be to obtain strong populations of young bees to go through the winter months, and then to give sufficient food in time for sealing over for winter food. Much will depend on the weather; a bright, warm September is always conducive to successful wintering.

To procrastinators, who postpone feeding until October, and that month proves unpropitious, the results are disastrous in the extreme.

Re-Queening.—A general complaint is abroad that young queens have been lost in unusual numbers on their wedding-flights. In our own apiary about one-third have disappeared. Last season, out of something more than a score, we had not a single loss. By keeping a close watch over hives having young queens, where loss occurred, we were able to supply others without loss of time, by means of nuclei or ripe queen-cells, and all are now breeding largely. Let, therefore, all hives at all doubtful as to their queens, be carefully examined, and where queenless, now is the time to introduce Italian or other imported queens. Throughout September we have introduced as successfully, and as good imported queens, as during any month of the year, and at reduced prices.

Nuclei.—These should now be united, and formed into strong colonies, for going through the winter, directions for which will be found in all Bee-books.

Do not forget the cottager, and his condemned bees; but strive to teach him the *more excellent way*.

INTERNATIONAL INVENTIONS EXHIBITION, 1885.

We are happy to announce that Messrs. G. Neighbour & Sons, of Regent Street, and Mr. S. J. Baldwin, of Bromley, Kent, have both had awarded to them silver medals for their exhibitions of bee appliances.

A Prolific Swarm.—Out of a beehive belonging to Mr. Heys, Woodneuk, Barrhead, near Glasgow, there have been no less than six swarms of bees within three weeks. The dates on which the different swarms made their appearance were as follow:—23rd June, and the 3rd, 4th, 6th, 10th, and 12th of July.

A Swarm Hanging Three Days.—It is doubtless an unusual thing for a swarm to hang three days, but such was the case with a second swarm, at Creeting, Suffolk, in June last. The stock from which it came is in a large flat-topped skep; and the swarm came out about 10.30 in the morning on June 15th; it settled high on the branch of an elm-tree, at least forty feet from the ground. The sun was hot at the time, with an east wind; on the 16th the sun was hot occasionally; on the 17th it was overcast and very cool; the bees left the tree about eleven a.m. on the 18th, which was warm and sunny. It was a very fair-sized swarm, and when it was gone a piece of comb was visible, about two inches wide at the base, and four or five inches long.—T. E. L.

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

Discussion on the Rev. F. G. Jenyns' Paper on 'Bee-keeping in its Educational Aspect.'

Mr. D. Stewart said there was one point especially worthy of their attention in regard to Mr. Jenyns' paper, and that had reference to the selection of bee-keeping as a subject for education, because it opened out so many other subjects. They often spoke of a land flowing with milk and honey, and that expression would perhaps indicate what he meant. They could not have milk and could not have honey in good supply unless the land produced in abundance. Pastures must be plentiful, the water-courses must be abundant, the skies must be pure, and all vegetation must be luxuriant. The moment anyone was induced to visit an apiary, he would find that he was almost imperceptibly led on to think about other matters relating to natural history. If he followed the bees in their daily flights he would become interested in the flowers and the fruits, and the delightful study of botany. There were no doubt many other interesting matters connected with bee-keeping (the science of chemistry, for instance,) which would come in for a share of his attention.

The Rev. J. Lingen Seager thought there was a danger of confusing two things—bee-keeping and the science of the bee itself. No doubt it would be very easy to teach in schools the natural history of the bee to a certain extent, but he did not see how it was possible to teach bee-keeping to the scholars. The theory of it would be of very little use. Anyone who had kept bees knew that more could be learnt in one half-hour by seeing the hives handled than could be imparted in any number of lessons in school. That difficulty no doubt the Education Department fully appreciated, and he could not find much fault with their action in the matter. They could not be surprised that the natural history of the bee had not been adopted as a special subject of education, because the Department fail to recognise the claims of the bee to special attention over those of any other insect. He had hoped that they might find a way of introducing the question in some form into the Code, but he confessed to having become less sanguine lately on the matter. He was inclined to think the education of bee-keepers must come later in life. He had himself tried to interest children in the subject, but had failed in every case where the person was under sixteen years of age. Children liked to see the bees once or twice perhaps, but even if they did not get stung, the interest could not be kept up longer. He was not trying to throw difficulties in the way, but he thought that bee-keeping was a subject, like many others, which could not keep the attention of young people, although it might be one of absorbing interest to those of more mature years.

Dr. Wray said, in reference to the education part of the question it might interest those present if he mentioned a few facts of history connected with the subject of bee-keeping. They show what encouragement was given to that industry 120 years ago. In 1761 the Society of Arts offered a gold medal to the person who should erect the greatest number of hives or boxes stocked with bees, and a silver medal for the next greatest number. In 1762 the gold medal was awarded to Thomas Fawcet, of Oxque, in the parish of Marrick, near Richmond, in Yorkshire, for the greatest number of stocks, being 223. In 1763 another gold medal, which was in his (Dr. Wray's) possession, was given to Mr. Fawcet for 185; another in 1764 for 105; and a fourth in 1765 for 182 stocks. That gentleman had an only child and heiress, known as the 'Queen-bee of Swaledale,' whom his grandfather, George Wray, married; so that the Dales' Wrays, of whom he was the elder, claimed royal descent in a sense unknown to any other clan. That was mentioned in 4, *Genealogist*, 284; and further information on the subject of bee-farming in the last century would be found in 1, *Dossie's Memoirs of Agriculture*, A.D. 1768.

Mr. Hehner heartily agreed with the paper. As a scientific man he felt how impossible it was to teach anyone in the compass of a little book something of the whole of nature. Attempts were made to do this under the cramming system for public schools examinations. He thought it was much better to teach one scientific subject thoroughly than a lot of them badly. In the course of his professional work he had come into contact with medical men supposed to have had a general scientific education, and he was often surprised to find that they knew very little about science at all, their attention having been divided between too many subjects.

The Rev. T. Sissons hoped Mr. Jenyns would not think, because the discussion had not been freely entered into, that his paper was uninteresting to them. This was far from being the case, for so much matter for consideration had been offered that it was difficult to select one point in particular to speak upon. He trusted they would permit him to digress for one moment and allude to a matter which had recently afforded them considerable sorrow. That was the first Quarterly Meeting they had held since the Association had sustained a very serious loss in the premature death of their friend, the Rev. Mr. Peel. He felt it would be unkind of them to let the occasion pass without a reference to that painful event. Those who had been longest associated with the institution knew best Mr. Peel's worth, but every member of it must have felt that they had in him not only an admirable Secretary, but an excellent friend. It would be difficult to find anyone who combined all the qualities which were to be found in him. His remarkable energy, wisdom, firmness, and affability, withal rendered him beloved by everyone who knew him. Mr. Peel had been their adviser, and, in fact, the moving spirit of the Association, and it was therefore only natural that the Committee should deeply deplore his loss. He was exceedingly glad Mr. Jenyns had introduced the subject, which had an especial interest for him. He remembered when the system of reading original papers at the Quarterly Meetings was established. At that time they were sore afraid that there would soon be a dearth of subjects, but experience soon settled that difficulty. He knew of no study which had done so much to interest him and retain his interest by giving him an ever-increasing taste for it as bee-keeping. He thought, when starting as a bee-keeper, that in about twelve months he would know all about the matter, but, after keeping bees for several years, he felt that he was now only just on the fringe of the subject. The popular idea was that any one had only to go and get a skep and put the bees in it, and there was an end of the matter. He had found that every season added to his stock of knowledge in regard to bee-keeping. He had been in the habit of preaching a great many anniversary sermons from time to time in connexion with Sunday schools. Of course he was expected to put before the children and teachers something new and attractive as often as possible. He had found no subject so interesting as that treating upon bees and honey and taking up Samson's experience in the matter. The old people also seemed interested in that particular sermon—in fact, all were astonished and entertained by a description of the wonderful performances of the bees, of which they had no conception. He quite agreed with Mr. Seager as to the difficulty of making bee-keeping a part of school education, and felt that it could only be treated as such in the schools of rural districts. He found that education on this subject had done harm in his district, for he had educated his neighbours rather too fast. The result of this was that they were all setting up hives, and

the over population would cause a scarcity of bee food, and some of the bees must therefore starve. He lived in a London suburb where the supply of bee food was limited; probably in country places no inconvenience would be suffered from such a circumstance. He had been able, from the hive and its contents, to teach his neighbours lessons of industry, economy, patience, and neatness.

The Rev. Mr. Jenyns, in reply, said he quite agreed with the remarks of Mr. Hehner as to the effect that whatever branch of education be taken up, it is of the utmost importance to learn one subject thoroughly. The object of his paper had been to enforce that view. He felt that this question was one of great educational interest, for when a child had learnt something about bees and bee-keeping he would naturally be led on to further steps in the vast field of natural history, in which he would find sufficient matter for study to satisfy the highest intellect. He quite agreed with Mr. Seager as to the difficulty of teaching the practical part of the subject in schools, and he did not anticipate that it could ever be done in elementary schools. He thought that if they could get the natural history of the bee taught in schools it would be a step in the right direction, because the scholars would be sure to want further information on the subject, and would thus be tempted to inspect the hives for themselves, and gain considerable practical knowledge thereby. He thanked the audience for their kind attention.

The Rev. T. Sissons proposed, and Mr. Stewart seconded, a vote of thanks to the Rev. F. G. Jenyns for his valuable and interesting paper, which was briefly acknowledged by the latter gentleman, and the proceedings closed.

HANTS AND ISLE OF WIGHT BEE-KEEPERS' ASSOCIATION.

The chief Annual Show and Honey Fair of this Association was held at Southampton, August 1st and 3rd, in connexion with the Royal Horticultural Society of Southampton, and proved interesting and successful to a degree. The weather was all that could be desired, and the visitors on the latter day (August Bank Holiday) arrived in crowds and kept the officers in the bee department hard at work from 10 a.m. to 8 p.m.

The bee tent was constantly thronged by an eager audience who testified from time to time their appreciation of the efforts of the Association, the lectures being free to everyone, and the vastly increased public interest in bee-keeping upon modern plans was apparent upon every hand. At intervals during both days of the show the manipulations in the bee-tent and the excellent explanatory and instructive lectures given by the hon. secretary, E. H. Bellairs, Esq., attracted a great number of people, who appeared greatly interested and listened most attentively to the remarks of the speaker. An excellent point to the lectures was the presence of two working men who had cleared by their bees last year 20*l.* and 28*l.* respectively: and whilst pointing this out, Mr. Bellairs was careful to explain that not every one must expect to reap such gains, although he felt sure an ordinarily intelligent man might expect to realise a handsome return for his labour and outlay. His recommendation of bee-stings as an antidote for the rheumatics was not taken *au sérieux*. More than usual interest and surprise was created by the quiet and clever way in which a lady, Mrs. Bellairs, drove the bees from a straw skep, found the queen, &c., not even having the protection of a bee-veil, and without a single sting. This lady also passed the examination of the B. B. K. A., and obtained a certificate as a 'Practical Expert.' George Forward, of New Town, Christchurch; Thomas Giles, of Cowsfield; William Welch, West End, Southampton, all passed the examination, and will obtain the experts' certificate of the B. B. K. A. for practical work. Mr. John M. Hooker was judge at the Show, and the examiner appointed by the B. B. K. A.

In the hive department there was a full show, Messrs. Abbott Bros., Messrs. Edey and Son, and Messrs. Hart, being represented by large and interesting collections of bee furniture, besides special hives, &c., by other makers in the hive classes. In the novelties or 'inventions' class, the Rev. Dr. Wray exhibited his 'Mel-Pel' or honey extractor and Messrs. Abbott their new section-case and a new plan for fixing foundation in the frames. The Derbyshire Extractor also in this class was generally approved for workmanship, though not strictly a novelty.

In the honey classes, it is worthy of note that the first and second prizes for sections were carried off by two exhibitors residing close to each other, the same thing occurring in the extracted class, though in a different part of the county; in the former case the exhibits came from the market gardening district south of Southampton, and in the latter from the higher land upon the Hampshire Downs. In arriving at these conclusions, it is needless to say the judges had nothing to guide them, simple numbers alone being placed before them. The much-prized silver medal was won by a magnificent display of sections and bottles belonging to Mr. H. W. West, an employee at Swanmore House, Bishop's Waltham, whose success, seeing that he is a novice in bee-keeping, must have made older bee-keepers jealous. F. J. Beckford, Esq., of Winchester, followed second, carrying off the bronze medal, and Mrs. Best, of Red Rice, was awarded the certificate.

For the largest and best display of honey in every form, W. Woodley of Newbury, took chief honours with a grand pile of sections and bottles weighing nearly 5 cwt., Mr. Bellairs following with about 2 cwt. charmingly arranged amongst flowers in handsome glass vases, in the centre of which was displayed in a heavy gilt frame a drawing of the Diamond Bee (in gold) presented to the Princess Beatrice by the Hants Association.

There were in all 126 entries for the Show, so that its magnitude is easily reckoned. Upwards of 24*l.* worth of honey was disposed of, showing that the demand is steadily increasing with the supply.

We append a list of the awards:—

Class 1. For the best collection of Bee Furniture, 3*l.*; 1*l.*:—Messrs. Abbott, 1; Messrs. Edey, 2. II. For Observatory Hives stocked, 1*l.*; 10*s.*:—Messrs. Hart, 1. III. For Imported Queens, 1*l.*; 10*s.*:—Messrs. Abbott, 1; Messrs. Edey, 2. IV. For best and most complete Bar-frame Hive, price not to exceed 10*s.*: 1*l.*; 10*s.*:—Messrs. Abbott, 1; A. D. Woodley, 2. V. For the best Cottager's Hive, price not to exceed 10*s.* 6*d.*: 1*l.*; 10*s.*:—G. Forward, 1; A. Woodley, 2. VI. For best home-made hive, amateur's work, 10*s.*; 5*s.*:—W. Welch, 1; F. G. Ayling, 2. VII. For best Section rack, 10*s.*; 5*s.*:—Messrs. Abbott, 1; ditto, 2. VIII. No awards. IX. For best 12 lbs. Super Honey in 2 lb. Sections, 1*l.*; 10*s.*; 5*s.*:—G. Horner, 1; E. Ainsley, 2; E. H. Bellairs, 3. X. For best 12 lbs. Super Honey in 1 lb. Sections, 1*l.*; 10*s.*; 5*s.*:—W. Woodley, 1; T. Giles, 2; Rev. C. G. Anderson, 3. XI. Ditto, Cottage and Artisan Members only, 1*l.*; 10*s.*; 5*s.*:—W. Woodley, 1; T. Giles, 2; E. Ainsley, 3. XII. For best 12 lbs. Extracted Honey in vessels not exceeding 2 lbs. each, 1*l.*; 10*s.*; 5*s.*:—Mr. H. F. Hart, 1; Mrs. Hughes, 2; F. Beckford, 3; F. G. Ayling, highly commended; Mrs. Best, commended. XIII. Ditto, Cottage and Artisan Members only, 1*l.*; 10*s.*; 5*s.*:—J. Downton, 1; W. Woodley, 2; G. Holly, 3; T. Giles, highly commended. XIV. For best 24 lbs. Honey; 12 lbs. in Sections, and 12 lbs. in bottles, 1st, Silver Medal; 2nd, Bronze Medal; 3rd, Certificate of Merit:—H. W. West, 1; F. Beckford, 2; Mrs. Best, 3; W. La Croix, highly commended. XV. For largest and best display of Comb and Extracted Honey, 1*l.* 10*s.*; 10*s.*:—W. Woodley, 1; E. H. Bellairs, 2. XVI. For best Super of Honey (not in sections) exceeding 10 lbs., Cottagers only. 1st, Bar-frame Hive and Stock of Bees, presented by the Hon. Secretary; 2nd, 7*s.* 6*d.*, Smoker and Bee Veil:—T. Giles, 1; A. Ayling, 2. XVII. For best sample of Bees'-wax, weight

not less than 3 lbs., 10*s.*; 5*s.*; 2*s.* 6*d.*:—W. Woodley, 1; Messrs. Abbott, 2; F. G. Ayling, 3.

The show was a great success, and augurs well for the future of the Hants and Isle of Wight Bee-keepers' Association, and with such an excellent and energetic hon. secretary it bids fair to be second to none of the County Associations.

BERKSHIRE BEE-KEEPERS' ASSOCIATION.

The fifth annual show and honey fair of the above Association was held, in conjunction with the show of the Prince Consort's Association, in Windsor Home Park on Tuesday, July 14, and was well attended. Amongst the visitors to the show were their Royal Highnesses Prince and Princess Christian, attended by Captain Campbell and Miss Loche: the Mayor of Windsor (Mr. J. Oberlin-Harris), Sir Joseph Devereux, the Dean of Windsor, Rev. Canon Gee, &c. The most striking exhibit in the show was the magnificent collection of this year's honey by Mr. W. Woodley and Messrs. Woodley Bros., delicately tinted yellow, greenish, fawn, and white, according to the flowers from which it was culled. Beautifully stored by the bees in combs of faultless regularity, and elegantly put up by the exhibitor, it could not fail to attract every visitor's attention. Honey in sections seems rapidly to beat out of the field the fluid honey put up in bottles. The cause is not far to seek. Honey in the natural comb has the stamp of purity indelibly impressed upon it, it needs no analysing; it is untouched by hand, and the public are getting very shy of the rubbish which has but too frequently been hitherto sold under all sorts of high-sounding names and put up in pretty bottles. The production of sectional honey is indeed the acme of bee-keeping. The collection of wax on show was also very good. In spite of the enormously increased production of substitutes for wax, such as paraffin and stearine, yet wax is unsurpassed for innumerable purposes, and therefore keeps its own place. Samples of foreign wax were also exhibited, from the almost black wax of Madagascar bees to the naturally white Indian wax. The Rev. V. H. Moyle, hon. sec. of the Berkshire Bee-keepers' Association, exhibited and obtained a first-class certificate of merit for a very large collection of honey in various applied forms, comprising several productions from leading firms and others. The Princess Christian remained some time at this stand and evinced much interest in the manifold uses of honey as explained to her by Mr. Moyle. Her Royal Highness has been graciously pleased to receive handsome samples of all the various productions. Mr. R. Wood, of Windsor, and Mr. E. Cardwell, of Reading, received, the first a certificate, and the second the next award for the best collection of honey medicines; Mr. Wood showing several new medical preparations. Mr. W. Beckett, of Heywood, Manchester, exhibited an admirable collection of new honey drinks. A first-class certificate was awarded to Mr. Beckett. To Mr. Cross, of Oxford Street, Reading, was also awarded a first-class certificate for the newest and best application of honey in his corn and honey food, a combination which is admirable for infants, invalids, and old people. The whole series of honey in applied forms as exhibited was a marked advance in practically illustrating what can be done in this way, and shows that a great future is yet before bee-culture and the application of honey. Amongst other interesting exhibits was a bar-framed hive sent by Mr. Hearn, into which two live common snakes had entered when young and fed upon the bees and honey till their size prevented them getting out of the hive again. Mrs. Wheeler, of Virginia Water, exhibited a common garden pot filled with honey by bees. Mr. Bowley, of Reading, exhibited several samples of adulterated honey purchased in different parts of the county. The sale counter was under the charge of Mrs. Currey and Mrs. Cooksey, and a good business was done. The principal prize-takers were Messrs. Woodley, of Newbury and Chilton. The prizes were distributed by Princess Christian. The following were the awards:—

Open Classes.—1.—For the best observatory hive with English bees and their queen, 1, G. P. Cartland; 2, A. D. Woodley. 2.—For the largest and best collection of hives and bee appliances, 1, Abbott Bros. 3.—For the best moveable comb hive, 1, A. D. Woodley; 2, Abbott Bros. 4.—For the best and cheapest hive on the moveable comb principle, for cottagers' use, price not to exceed 10*s.*, 1, Abbott Bros.; 2, A. D. Woodley; Commended, G. Worssell. 5.—For the straw hive best adapted to modern bee-keeping, price not to exceed 5*s.*, 1, Abbott Bros; 2, S. Dickens. 6.—For the neatest and best rack containing 1-lb. sections, 1, Abbott Bros.; 2, A. D. Woodley. 7.—For the best crate for the safe conveyance of honey in sections or jars, 1, Abbott Bros. 8.—For the best and cheapest honey extractor, 1, Abbott Bros.; Commended, A. D. Woodley. 9.—For the best collection of pure bees' wax, 1, Abbott Bros. 10.—For the best sample of thick comb foundation, 1, A. D. Woodley. 11.—For the best sample of thin comb foundation, 1, Abbott Bros. 12.—For the best feeder, 1, A. D. Woodley.

Local Prizes.—13.—For the best exhibition of super honey from one apiary, 1, W. Woodley; 2, Woodley Bros. 14.—For the best super of honey (not being sectional), 1, Woodley Bros.; 2, W. Woodley. 15.—For the best twenty-one 1-lb. sections of comb honey, 1, W. Woodley; 2, Mrs. Goring. 16.—Special class, open to members of the Berks Bee-keepers' Association.—For the best twenty-one 1-lb. sections of comb honey, 1, W. Woodley; 2, Woodley Bros. 17.—For the best twelve 1-lb. sections of comb honey, 1, W. Woodley; 2, Woodley Bros. 18.—For the largest and best exhibition of run honey in glass vessels, 1, H. Fewtrell; 2, Woodley Bros. 19.—For the best 12 lbs. of run honey in 1-lb. or 2-lb. glass jars, 1, W. Woodley; 2, Woodley Bros.

Special Prizes.—20.—For the largest and best exhibits of honey from any apiary in Berks (given by Mr. R. Richardson-Gardner, M.P.), 1, W. Woodley; 2, Woodley Bros. 21.—For the best collection of pure bees' wax, 1, W. Woodley; 2, G. P. Cartland. 22.—For the best super of honey taken from one hive, 1, W. S. Darby.

Special Prizes (open to all).—23.—For the best collection of honey applied as food, 1, Rev. V. H. Moyle. 24. For the best collection of honey applied as beverages, 1, W. Beckett; Commended, A. H. Carey. 25.—For the best collection of honey applied as medicine, 1, R. Wood; Highly commended, J. Cross. 26.—For the best and newest application of honey in any form, 1, J. Cross.

KENT BEE-KEEPERS' ASSOCIATION.

Annual County Show.

This show was held in conjunction with that of the Ashford and District Cottage Gardeners' Society on Wednesday, July 29th. It had been intended to hold the exhibition at Gravesend, but circumstances preventing the invitation of friends at the former place, backed by kind offers of support, decided the Executive to adopt that locality. The Council of the Association having resolved, as a practical economy, to curtail the amount of prizes formerly given, some little anxiety was felt as to the extent to which it might affect the number of entries, but the result fully reassured them. The quantity and quality of the honey largely exceeded that of any show previously held in the county, going far to prove that the bee-keeping movement is firmly establishing itself as a practical pursuit. The complaint has been heard that too few of the members come forward to compete for the honourable distinction of prize-winners, and that certain names are almost stereotyped in the prize lists. Be this as it may, the fact is now recorded that members of the cottager class fairly wrested the

first honours from the more powerful and favourably placed exhibitors. In further answer to such complaints, the question may be asked, what would be the probable result to the exhibition if the larger producers refrained from showing? In such respects, it may be submitted, honey shows present no difference to horticultural, agricultural, or any other show, and it can be no matter for surprise that from time to time certain names occupy a distinguished place. It is now very gratifying to state that a cottager, whose name is not unknown in the pages of the *British Bee Journal*, gained the distinction of winning the silver medal of the B.B.K.A., for the 'largest exhibit of comb honey from one stock of bees;' and also the first prize for the 'best twenty-four 1-lb. sections of super honey.' It is also equally pleasing to record that two of the first prizes offered to cottagers exclusively were awarded to one who has adopted bee-keeping as a means of adding to her slender income, otherwise obtained by the needle.

Briefly, it may be stated, that the chief awards in the honey classes were gained by the Bee and Fruit Farming Company, Limited, Mr. R. Filmer, the cottager first alluded to, Mr. Heath, Mr. Guest, Rev. H. Bartram, Mr. Cudd, Miss Seelly, and Mr. Philpot. In the classes for hives and appliances, Mr. Baldwin and Messrs. Green and Sons exhibited their usual excellent collections. In the class for hives, the cost of which was not to exceed 12*s.* 6*d.*, Messrs. Green gained the first, and Mr. Baldwin the second prize. A novel feature was shown in that of an exhibit of the Bee and Fruit Farming Company, Limited, viz., an arrangement for developing the capabilities of the straw skep for the supering system. This consisted of a skep in an inverted position, with floor-board and adapting board. The arrangement carries into effect in the simplest and most inexpensive manner, the plan which is being adopted by many leading bee-keepers, especially American, of using the reversible bar-frame. The exhibitors of this specimen claim for it that it places within the reach of the slenderest means, and the most unscientific bee-keeper, the chief advantages of the bar-frame hive, without any necessity for the extensive outlay and much painfully acquired experience.

Another interesting feature of the show, and of which much notice was taken, was a collection of edibles, confections, effervescing drinks, medicaments, &c., &c., kindly sent for exhibition by the Rev. V. H. Moyle of Berkshire, whose energy is doing so much to develope the uses of honey. In all of these articles honey forms the staple, or at least a very important part. The general effect of the show was much enhanced by a fine collection of honey in its most perfect and attractive forms exhibited on a pyramid stand of large dimensions, by the Bee and Fruit Farming Company. This was greatly admired, and assisted in a large measure in eliciting the expressions of satisfaction at the show generally.

The judges were the Rev. G. Raynor, Rev. T. Sissons, Mr. T. Nottidge, and Mr. F. H. Cudd. In the forenoon the first-named judge held an examination of candidates for third-class certificates of the B.B.K.A., at which the only two who presented themselves passed with honours. These were Mr. R. Filmer, platelayer on the S.E.R., Ruckinge, Ashford, and Mr. Greenfield, signalman on the same railway, Etchingham, near Hawkhurst.

[We beg to congratulate our former friend and correspondent 'The Platelayer' on his success as an exhibitor at the Show, and on his having so satisfactorily passed his examination. We shall be pleased at any time to hear from him.—Ed.]

LEICESTERSHIRE BEE-KEEPERS' ASSOCIATION.

The fourth annual show of this Association was held in connexion with the County Agricultural Society, at Market Harborough, on July 29th and 30th, 1885.

The exhibits filled a tent nearly thirty yards long. The display of honey was unusually fine, both in jar and in comb, and notwithstanding a limit of fifty pounds was imposed in some of the classes, it is estimated that nearly 2000 pounds of honey were staged. The Rev. F. G. Jenyns and Mr. J. H. Howard acted as judges. During the first day the first-named gentleman examined three candidates for third-class expert certificates. Two of them, viz.: Mr. Walter S. Pridmore, of Hinckley, and Mr. W. P. Meadows, of Syston, Leicester, passed a satisfactory examination, and the third equally so, as far as the examination was carried: time did not admit of its completion.

Prize List.—Class 1. Best stock of bees.—1, W. P. Meadows. Class 2. Best super honey.—1, C. Foxon and Mrs. Rippin; 2, W. Harrington. Class 3. Best run honey.—1, Rev. M. A. Thomson; 2, J. W. Dratle, junr. 3, G. Squires. Class 4. Best comb honey in sections.—1 (silver medal), J. W. Bickley; 2 (bronze ditto), R. J. Bragg. Class 5. Best run honey.—Certificated, 5*s.*, G. Squires. Class 6. Best frame-hive for 10*s.* 6*d.*—1, W. P. Meadows; 2, C. Redshaw; 3, Abbotts Bros. Class 7. Best cottager's hive for 5*s.*—C. Redshaw. Class 8. Cheapest and neatest supers.—1, Abbott Bros.; 2, C. Redshaw. Class 9. Best straw skep.—1, W. P. Meadows; 2, C. Redshaw. Class 10. Best collection of bee-appliances.—1, W. P. Meadows; 2, C. Redshaw.

NORFOLK AND NORWICH BEE-KEEPERS' ASSOCIATION.

The fourth annual show of this Association was held in connexion with the Horticultural Show on Thursday, 9th July, and was well attended. The exhibition was under the management of the hon. sec., Mr. H. R. Emms, assisted by Mr. J. O. Cattermoul,—Jesse Garratt, Esq., secretary of the Kent Association, acted as judge, assisted by Messrs. W. T. Gidney and W. H. Back, of the Norfolk and Norwich Association. There was a good display of honey, particularly extracted. Mr. J. J. Rice, of Wensum Street, Norwich, exhibited a splendid assortment of hives and apiarian appliances, which attracted the attention of a large number of amateur bee-keepers and others. The manipulations of bees were carried out by Mr. E. Lilly, expert of the Association, who delivered most interesting lectures on the 'Modern and humane System of Bee-keeping,' which were listened to by large and appreciative audiences. One particularly interesting feature in this exhibition was the bee-driving by a little boy of ten years of age (son of the hon. sec.), who handled his bees in a very cool and quiet manner, and exhibited the utmost indifference to an occasional sting, much to the astonishment of many of the public, who appeared to look upon our little friends—the bees—as most ferocious animals. Subjoined is a list of the prize-winners:—

1.—For the best stock of English bees, 1, Rev. A. E. Booker Hill; 2, H. Dobbie. 2.—For the best super of honey not in sections, 1, F. T. Chevallier; 2, H. Bartram. 3.—For the best twelve 2-lb. sections of honey, 1, John Halls; 2, J. W. Eldridge. 4.—For the best twenty-four 1-lb. sections of honey, 1, Rev. H. B. Johnson; 2, Mrs. S. G. Freeman; 3, H. Beswick; Extra 3, Rev. J. J. Cumming. 5.—For the best twelve 2-lb. glass jars of extracted honey, 1, F. T. Chevallier; 2, H. H. Hurnard; 3, Rev. F. Page Roberts. The whole class Highly Commended. 6.—For the best twelve 1-lb. glass jars of extracted honey, 1, F. T. Chevallier; equal 2, H. H. Hurnard and Rev. F. Page Roberts; 3, John Laurence. A large class—Highly Commended. 7.—For the largest and best collection of extracted honey in glass jars, 1, C. W. Middleton; 2, H. H. Hurnard.

Cottagers' Class.—8.—For the best frame-hive for general use, 1, Robert Moore. 9.—For the best exhibi-

tion of honey in the comb, taken from one hive, without destroying the bees. 1, and silver medal, H. Bartram; 2, and bronze medal, R. Moore. 10.—For the best super of honey, 1, John Lawrence; 2, H. Bartram.

GLOUCESTERSHIRE BEE-KEEPERS' ASSOCIATION.

The above Association held a show of bees, honey, hives, and appliances in connexion with the Agricultural Show. The tent was well patronised each day, and a quantity of honey was disposed of in sections and bottles. Mr. Hole, of Tarrington, near Ledbury, expert of the Herefordshire Bee-keepers' Association, gave several displays of bee-driving, and lectured on the busy bee. The following were the awards:—

Hives, &c.—Class 1. For the best moveable frame-hive—1, Mr. J. H. Howard, Holme; 2, Messrs. Abbott Bros., Southall. Class 2. For the best flat-topped straw hive—1, Mr. J. R. Hole, Ledbury; 2, Mr. J. H. Howard. Class 3. For the largest and best collection of hives and bee-furniture—1, Mr. J. R. Hole. Class 4. For the best Observatory hive stocked with bees—1, Mr. W. D. Slade, Cheltenham.

Honey.—Class 5. For the best twelve 1-lb. sections of comb-honey—1, Messrs. E. J. & F. B. Burtt, Gloucester; 2, Lord Sudeley, Toddington; 3, Mr. E. Marshall, Cheltenham. Class 6. For the best super of honey in the comb (not sectional)—1, Mr. W. J. Smith, Beckford; 2, Mr. C. Long. Class 7. For the best exhibit of twelve 1-lb. glass jars of run or extracted honey—1, Mr. C. Marshall; 2, Lord Sudeley; 3, Mr. W. J. Smith.

Cottagers' Classes.—Class 8. For the best bar-frame hive made by a cottager—1, Mr. W. Griffin; Commended, Mr. A. Brown. Class 9. For the best six 1-lb. sections of comb-honey—1, Mr. J. J. Smith, Beckford; 2, Mr. Long; 3, Mr. Williams. Class 11. For the best exhibit of run-honey in glass jars—1, Mr. T. Dodge; 2, Mr. Carter; 3, Mr. A. Brown.

CAMBRIDGESHIRE AGRICULTURAL SOCIETY.

The Annual Show of the above Society was held at Wisbech on July 21 and 22. One of the most interesting features of the show was the honey fair and exhibition of bee appliances. Mr. J. H. Howard, a certified expert of the British Bee-keepers' Association, kindly gave his assistance and presence, and carried off some of the chief prizes. The arrangements, made by a local committee of bee-keepers (Mr. Dann and Mr. Bothamley being especially active in this department), resulted in a capital show of very fine honey being staged, the season being evidently favourable to the production of good honey. The Misses Peckover's prizes brought out a strong competition, fifteen being entered in the class for sections, and thirteen for honey in jars, Mr. Howard taking first prize in the former and Mr. F. Oldham in the latter. Miss Peckover's extra prize of *1l.* for super honey was awarded as follows:—1, A. Bothamley; 2, H. Tuck, Upwell; 3, T. Cobley, North Brink. A driving competition took place in the bee tent, in which Mr. Howard was the only competitor; great interest was shown in his skilful manipulation. Upwards of 850 lbs. of honey were staged, including 192 lbs. in sections. Much credit is due to Mr. Dann, of Wisbech, for the arrangements made by him, and for the great success of the show, he taking an active part in obtaining a liberal schedule of prizes.

OXFORDSHIRE BEE-KEEPERS' ASSOCIATION.

The annual show of this Association was held on July 30th in the gardens of Wadham College, Oxford, in glorious weather, but the entries hardly realised our meanest expectations. It was expected that there would be a grand display of honey and implements, but we were sadly disappointed. The samples of honey that were exhibited, though, were of fine quality and pure colour. The driving competition proved the most amusing and interesting part of the proceedings to outsiders, and Messrs. Perry, Cobb, and Grant drove respectively: but the latter was unable to find the queen, and therefore was not placed. The following were the awards:—

Bees.—Best specimen of Ligurian bees—1, Mr. Abbott; 2, Mr. Perry. Best specimen of English bees—1, Mr. Perry; 2, Mr. Abbott.

Honey.—Best 2-lb. sections of honey—1, Rev. F. Dillon. Best 1-lb. sections of honey—1, Rev. H. Barter; 2, Mr. H. Cobb; 3, Mr. W. Watts. Best super of honey—1, Messrs. Woodley. Best exhibition of run or extracted honey, in twelve 2-lb. or twenty-four 1-lb. glass jars—1, Mr. J. Perry; 2, Mrs. Cobb. Best and largest exhibits of all kinds—1, Rev. F. Dillon; 2, Mr. Crute.

Hives.—Best moveable frame for general purposes—1, Mr. Abbott; 2, Mr. Woodley. Best moveable frame-hive, price not to exceed 10*s.* 6*d.*—1, Mr. Abbott; 2, Mr. Woodley. Best hive made by a member of the Association—1, Mr. Watts; 2, Mr. Perry.

Driving.—Divided between Mr. Perry and Mr. Cobb.

Bee Appliances.—Best collection of bee-furniture—1, Mr. Abbott.

Wax.—Best exhibit of wax—1, Mr. Abbott; 2, Mrs. J. Cobb.

Mr. Blow, of Welwyn, Herts, occupied the Bee Tent, and initiated many during the day into the mysteries in connexion with bees and bee-keeping. We have been asked to state that an extractor has been placed in the hands of the local Secretary, Mr. Grant, for the use of the members of the Association.

LINCOLNSHIRE AGRICULTURAL SOCIETY.

Great Grimsby Meeting.

The bee, honey, and hive department of this Show was fully up to its usual extent, whilst the interest in all that was going on proved how deeply rooted bee-keeping is getting in the minds of the public. After the rush to the horse-ring, next came the rush to the bee-ring. Many and loud were the expressions of pleasure that so much interest had been taken with the bees and all their belongings. The department was under the management of the hon. sec. of the Lincolnshire B. K. A., R. R. Godfrey, Esq., of Grantham, with Mr. W. Martin, Mr. Bolton, and Mr. H. O. Smith, as able backers; and right thoroughly may they be satisfied with the result of their labours, which, we may add, was made all the lighter by the great kindness and courtesy they received from the members of the Committee and from Mr. Upton, their able and valuable secretary. The entries, though rather less in number than at the Grantham Show last year, were of greater extent, and a lofty shed, 70 feet by 20 feet, decked with bunting, was well filled. The collection class was represented by Messrs. Abbott Bros., Mr. Baldwin, Mr. Best, and Mr. Dickins, who appeared to be well patronised. The largest exhibitors in the honey classes were Mr. Thorpe and Mr. W. Martin; some good sections and supers were to the front, which thoroughly deserved the merit awarded them. The classes for bees and observatory hives were larger than ever, and, as usual, was a source of great interest. The manipulating tent, with Mr. Baldwin as expert and lecturer, was thronged with visitors eager to learn something about bees, and no doubt many left deeply impressed with what they had seen and heard. Mr. Carr, of Newton Heath, Manchester, and Mr. Henry Yates, of Grantham, were the judges, and (as might be expected with two such able men) their awards were well received. We append list of awards:—

BEES, HONEY, &c.

Class 1. Ligurian, Carniolan, Cyprian, or Syrian, with queen in an observatory hive: 1st, Messrs T. Edey and Son, St. Neots; 2d, Mr. H. O. Smith, Louth; 3rd, Messrs. Abbott Brothers, Southall, London. Class 2. English, with queen in an observatory hive: 1st, Mr. F. W. Riggall, Gayton-le-Wold, Louth; 2d, Mr. H. O. Smith; 3d, Mr. R. Thorpe, Langriek Ville, Boston. Class 3. Largest and best exhibition of super honey, the produce of one apiary during the year 1885: No award. Class 4. Ditto extracted or run honey: 1st, Mr. Robert Thorpe, Langriek Ville, Boston; 2d, Mr. W. Martin, Wainfleet. Class 5. Twelve 1-lb. sections of comb honey in crate: 1st, Mr. F. W. Riggall, Gayton-le-Wold, Louth; 2d, Lydia Brown, Whaplode, Spalding; 3d, Rev. Forster Ashwin, Quadring Vicarage, Spalding. Class 6. Twelve 1lb. glass jars of extracted or run honey: 1st, Mr. John Lane, Marston, Grantham; 2d, Mr. R. R. Godfrey, Grantham; 3d, Mr. Walter Martin. Class 7. Super of comb honey: 1st, Mr. R. R. Godfrey, Grantham; 2d, ditto; 3d, Rev. Charles Potchett, Elmer House, Grantham. Class 8. Most complete and practical hive on the moveable comb principle, price not to exceed 30*s.*: 1st, Messrs. Abbott Brothers; 2d, Messrs. T. Edey and Sons; 3d, Mr. W. Martin. Class 9. Ditto, price not to exeeed 7*s.* 6*d.*: 1st, Mr. S. J. Baldwin, Bromley, Kent; 2d, Messrs. Abbott Brothers; 3d, Messrs. T. Edey and Sons. Class 10. Cheapest and neatest super for harvesting honey in the comb: 1st, Messrs. Abbott Brothers; 2d, Mr. T. Edey and Sons. Class 11. Honey extractor: 1st, Messrs. Abbott Brothers; 2d, Mr. S. Diekins, Hadley, Barnet; 3d, Mr. S. J. Baldwin. Class 12. Most complete collection of hives and bee furniture most applieable to modern bee-keeping: 1st, Messrs. Abbott Brothers; 2d, Mr. S. J. Baldwin; 3d, Mr. J. Best, Boston. The above prizes were given by the town and neighbourhood of Grimsby. Class 13. Straw hives, showing the most simple and ready means of managing and the best method of feeding, the hives to be stocked with bees working: 1st, Rev. C. Potchett; 2d, Mr. R. R. Godfrey.

FINCHLEY HORTICULTURAL SOCIETY.

At the Annual Show of the Finchley Horticultural Society, held in the grounds of Alderman Cotton, Esq., M.P., at Whitstone on Tuesday, July 14th, the bee tent of the Association attended under the management of Mr. J. T. Harveyson, the District Secretary, who was kept busily engaged throughout the afternoon, great interest being manifested in the lectures and the ease with which the bees were manipulated. This is the first time that bees have been exhibited in connexion with the Society, and the admission to the tent was free.

Special prizes were offered for super honey by H. C. Stephens, Esq., the first being taken by Mr. J. T. Harveyson, who also had a fine show of extracted honey, and the second by Mr. S. Dickens, who likewise had a number of appliances on show.

THE ISLE OF MAN BEE SHOW.

The exhibition of honey and bee-furniture was held at Castletown on 30th July, in connexion with the Agricultural Show. Taking into consideration the fact that it was only the second exhibition of the kind, we can congratulate the Manx people on their success, for, though a small show, the quality of the articles exhibited was very good. We venture to think that it is not advisable to let any competitor take more than one prize in the same class, as the present regulations rather tend to keep out the small bee-keepers.

Again we would advise offering prizes to exhibitors for the adjacent islands (England, Scotland, and Ireland), so as to make a larger show.

The tent of the B.B.K.A. was on the ground, and Dr. Walker (Wimbledon) was acting as expert, but unfortunately the hives provided for manipulation had all the combs smashed, owing to their having been brought from the north of the island by train, as no hives could be obtained near Castletown. Still the public thronged the bee tent, and Dr. Walker lectured on bees and bee-keeping during the afternoon, and much interest was shown, and various questions asked and answered.

The following were the awards by the Judges, Dr. Walker (Wimbledon), and Mr. James Moore (Douglas):—

For the best six sections of Manx honey: 1, Alfred Cubbon; 2 and 3, John Wade. For the best super of honey: 1, John Mylchreest; 2, Alfred Cubbon. For the best exhibition of run or extracted Manx honey: 1, Alfred Cubbon; 2, John Mylchreest; 3, E. C. Kerr.

For the finest sample of bees-wax: 1, James Mac-Whannell.

For the best collection of bee-appliances: 1, Alfred Cubbon; 2, E. C. Kerr.

CALEDONIAN APIARIAN SOCIETY.

The twelfth show of the Caledonian Apiarian Society was held on 'The Links,' at Aberdeen, on the 28th of July, and following days, under the auspices of the Highland and Agricultural Society. The weather was splendid, and the gathering large. The site secured for the exhibition of the appliances, produce, and work connected with apiculture, was perhaps the best and most conspicuous in the extensive show-yard. All the arrangements were made under the personal superintendence of Mr. Bennett, of Glasgow, whose earnest and practical zeal in matters pertaining to bees and bee-keeping in Scotland, is beyond all praise. The display was greater, so far as we are aware, than on any prior occasion. In the honey department there was ample evidence afforded of the bountiful season immediately preceding, and, in the mechanical, the rapid advance of improvements was fully attested. We are glad to perceive that, while some who have already earned a name among bee-masters had dropped out as competitors, others who promise equally well had taken their place.

The Judges were Rev. A. R. Findlay, Birnam, Messrs. Anderson, Dalry, Chivas, Smith, and Gordon, Aberdeen. Considerable difficulty was felt in making several of the awards, in consequence of an excellence that was uniform in most departments. Special attention was called to an ingenious artistic device, wrought out in comb and honey by the bees under the careful supervision of Richard McNally, Glenluce; and also to an extensive collection of liqueurs, confections, cakes, medicines, &c., in which honey was the principal ingredient, forwarded by Rev. V. H. Moyle, Reading. On the whole, the show was most satisfactory and encouraging.

The following were the prize-takers:—

Class 1. British bees—1, W. W. Young, Perth; 2, James Johnstone, Stirling; 3, Leslie Tait, Aberdeen. Class 2. Foreign bees—1, James Johnstone, Stirling; 2, W. and R. McNally, Glenluce. Class 3. Observatory hive—1, Leslie Tait; 2, W. and R. McNally. Class 4. Moveable comb hive—1, R. Steele, Newport; 2, George Brown, New Pitsligo, Aberdeen; 3, W. W. Young. Class 5. Hive, price 12*s.* 6*d.*—1, George Brown, New Pitsligo; 2, Richard McGregor, Banehory; 3, James Dean, Lochhill. Class 6. Inventions or improvements—1 and 2, W. and R. McNally. Class 7. Straw hive, price 5*s.*—1, Richard McGregor; 2, W. W. Young; 3, W. and R. McNally. Class 8. Most serviceable hive for general use—1, W. W. Young; 2, R. Steele; 3, W. and R. McNally. Class 9. Comb foundation—1, W. W. Young; 2, W. and R. McNally; 3, R. Steele. Class 10. Wax—1st, Richard McGregor; 2, R. Steele; 3, L. Tait. Class 11. Display of honey—1, W. and R. McNally; 2, Charles Carnegie, Marykirk; 3, William Low, Stanley. Class 12. Super above 20 lbs—1 and 2, Robert Anderson, Stevenston; 3, Peter Anton, Newburgh, Aberdeen. Class 13. Super above 10 lbs. and under 20—1, Robert Anderson; 2 and 3, James Crawford, Lamlash, Arran. Class 14. Super, not being sectional, not less than 12 lbs.—Peter Anton; 2nd, W. and R. McNally. Class 15. Twenty-four 4-lb. sections—1 and 2, Leslie Tait. Class 16. Twenty-four 1-lb. sections—1, George Ross, Lawrencekirk; 2, George Brown; 3, Peter Anton. Class

17. Twelve 2-lb. sections—1, William Low; 2, George Ross; 3, Charles Carnegie. Class 18. Twelve 1-lb. sections—1, George Ross; 2, D. McIntosh, Friockheim; 3, Leslie Tait. Class 19. Twelve 1-lb. jars run honey—1, Charles Carnegie; 2, William Low; 3, George Ross. Class 20. Heather honey, not less than 10 lbs.—1 and 2, W. and R. McNally. Class 21. Best design worked by bees—1, W. and R. McNally. *Ladies' Classes.*—Class 22. Super above 10 lbs. and under 20—1, Mrs. McGregor, Banchory; 2, Mrs. William McNally, Glenluce; 3, Janet Anderson, Dalry. Class 23. Glass super of honey-comb—1, Mrs. W. McNally; 2, Mrs. Low; 3, Miss Low, Stanley. Class 24. Twelve 2-lb. sections—1, Mrs. Low, Stanley. Class 25. Display of run honey—1, Mrs. Low, Stanley; 2, Mrs. Carnegie, Marykirk; 3, Mrs. McGregor, Banchory. Class 26. Liqueur or wine—1, W. Beckett, Heywood, Manchester. Class 27. Mead or beer—1, Richard McGregor; 2, Charles Carnegie. Class 28. Cakes—1st, Charles Carnegie; 2, W. and R. McNally; 3, W. W. Young, Perth. Class 29. Collection of articles made from honey—1, Rev. V. H. Moyle, Reading. Class 30. Collection of bee furniture, &c.—1, R. Steele; 2, W. W. Young; 3, L. Tait. Class 31. Tray of supers—1, Richard McGregor; 2, R. Steele; 3, W. and R. McNally. Class 32. Honey extractor—1, W. W. Young; 2, R. Steele. Class 33. Heather-honey extractor—1, W. W. Young; 2, R. Steele. Class 34. Diagrams, &c.—1, W. and R. McNally. Class 35. Display of honey-producing plants—1 and 2, W. and R. McNally. Class 36. Model apiary—1, W. and R. McNally. Class 37. Straw hive stocked with bees—1 and 2, James Johnstone.

NOCTON SHOW.

There was a very nice show of honey, also a fair for bees and bee-appliances at the Nocton (near Lincoln) Show, on Thursday the 23rd of July. The tents were on the lawn at the Hall. The Marquis of Ripon (late Viceroy of India) and the Marchioness were at home, and took a lively interest in the exhibits. Mr. R. Thorpe was the judge for bees, hives, and honey.

Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

CONGRATULATIONS TO THE NEW EDITOR.

Permit me to offer you my warmest congratulations, and a hearty welcome to the important post of Editor of the *British Bee Journal*. I venture to think the announcement of your having undertaken the editorship will be hailed with the greatest satisfaction by all readers of the *Journal*. Your large experience, thorough practical knowledge, undoubted ability as a writer on apiculture, and your being blessed with that happy quality—which would to God adorned the character of all men,—viz., 'charity,' especially befit you to be our guide and leader. Long may you live, and the 'old *Journal*' go on extending its usefulness (which it is bound to do) under your directorship. My hopes (as expressed to you when we last met) being now realised, *I* am content.—R. R. GODFREY, *Grantham, August 10th*, 1885.

ARE BEES A NUISANCE?

I am constrained to answer this question put in your your issue of the 15th July, because I am interested personally in its solution. I may premise that, so far as I can discover, there is nothing in the books touching the precise point, and, therefore, your query must be answered upon general principles and from a comparison of decided cases upon similar questions. As the majority of your readers are not lawyers I will not give more than my deductions from these cases.

Bees were originally animals (or insects) *ferœ naturæ* (naturally wild), but by domestication they have become *mansuetæ naturæ* (or tamed). Now, there cannot be a doubt that bees are in their nature ferocious, whether under provocation or not does not for the present concern us. This being admitted, then it legally follows that a man who keeps a ferocious animal, with knowledge of its mischievous propensity, is liable for any injury done by it. It is not at all necessary to allege negligence or want of care in the keeping of such an animal; the gist of any action brought being the keeping of the animal with knowledge of its mischievous disposition.

I quite admit that the foregoing conclusions are open to the remark that bees are not animals, but insects, and that they are not mischievous unless provoked.

With respect to the former contention I agree that there is a good deal to be said, although, as I have before stated, my own opinion is that this makes no difference, and with respect to the latter I think it is not arguable. For want of authority on this point I am driven to comparison of other cases, and I cannot do better than quote the very pithy rules given in a capital little book, 'Underhill on Torts.' The author says: 'The word nuisance (from the French *nuire*, to hurt) is applied in the English law indiscriminately to infringements of proprietary or personal rights, but for the present purpose it may be defined as any wrongful conduct in the management of property or any wrongful interference with the property of the public not necessarily depending for its wrongful character upon negligence.'

Again, we have another rule, 'Every person should so use his property and rights as not to cause injury to another, and the maxim is, "*Sic utere tuo ut alienum non lædas*"' (Use your own rights so that you do not hurt those of another), and Mr. Underhill quotes the case of a person growing a yew-tree on his own land which overhung the land of his neighbour and being eaten by the neighbour's horse caused its death; for this the owner of the yew-tree was held responsible, although there was apparently no negligence on his part.

Another rule quoted by Mr. Underhill is the following, and to my mind this rule and the cases he gives on it touch the point more nearly than any others:—'Any act or omission of a person, whereby sensible injury is caused to the property of another, or whereby the ordinary physical comfort of human existence in such property is materially interfered with, is actionable.' In an action for the abatement of a nuisance, Vice Chancellor Knight Bruce said, 'Both on principle and authority the important point next for decision may properly, I conceive, be put thus; ought this inconvenience to be considered, in fact, as more than fanciful, more than one of mere delicacy, or fastidiousness, or as an inconvenience materially interfering with the ordinary comfort, physically, of human existence; not merely according to elegant or dainty modes and habits of living, but according to plain and sober and simple notions among English people?' Now an objection to be pursued and stung by a neighbour's bees can hardly be said to be 'fancifulness,' or 'delicacy,' or 'fastidiousness;' on the contrary, all but enthusiastic bee-keepers will be prepared to admit that it is 'an inconvenience materially interfering with the ordinary physical comfort of human existence.'

One more example Underhill gives on this rule of a person who allows substances which he has brought on his land to escape into his neighbour's, and he states that an action will be without proof of negligence in the keeping of them. He illustrates this by the case of a person who collects water upon his land, which without any negligence escapes into his neighbour's land and does damage. And again, the Court will interfere to stop

the noise caused by dogs, from which arises loss of sleep, if the jury find that the noise has been productive of discomfort.

The premises and conclusions we may therefore sum up thus:—

1. Every person is bound to use his rights without hurt to his neighbour.

2. The injuries caused by ferocious animals are actionable without proof of negligence.

3. Any person congregating substances (or anything else) upon his land, is liable for damage done by them on their escape.

Therefore, any person having bees (which are ferocious animals) on his land, is responsible for any injury (or it would seem even discomfort or annoyance), that they may do to his neighbour, without any proof of negligence on the part of the bee-keeper.

I confess that I arrive at this conclusion reluctantly. I am myself in fear and trembling of an action for damages caused by the implanting of bee-stings in the persons of my neighbours, and in coming to this conclusion, I am deciding against my own wishes. If, however, the information is of use to your readers, I shall be pleased to have enlightened them: and if such of them as are 'learned in the law' can, and will displace any of the foregoing arguments and lead us to a different result, I shall be still more pleased.—THETA, *Withington, Manchester, 28th July*, 1885.

THE COLOUR OF POLLEN.

The observant bee-keeper will notice during the course of the summer that his bees collect pollen of all shades of colour, especially if he is located near gardens or nurseries, where a great variety of flowers are grown: and if this fine dust is tested by the microscope, it will be found that the pollen-grains are as equally varied in form, though one species of flower maintains a uniformity of colour, size, and shape. The colours range through many shades of violet, purple, blue, red, orange, and yellow; white, or shades of white, we also meet with frequently; even black is not wanting; but it will be observed that orange and yellow shades predominate over all others. Bees, apparently, have no preference for any one colour, but will collect pollen where it is most accessible. It is true, though, that several plants very prolific in pollen are totally neglected by bees. The cause, I believe, is that the pollen is not palatable. To point out the source of all the many varieties of pollen would be to enumerate many hundreds of plants, both British and foreign; therefore, I shall only mention a few of the most important. Orange pollen is produced by Portulacca (annual), broom, lilium, mignonette, and asparagus; yellow, by willow, wallflower, barbery, dahlia, mustard, dandelion, &c., &c.; blue, by several species of veronica; purple, by cultivated poppy, liliums, and species of Cape geranium; red, by a native lamium; pink, by eucharadium; brown, by liliums; white and its shades, by apple, pear, plum, hawthorn, apricot, holly, &c., &c.; black, by blackberry and linum grandiflorum. —HY. DOBBIE, *Thickthorn, Norwich, August 10th.*

BEES CROSSING WATER.

Some years ago I was sailing in the mouth of Cork Harbour, the day being rather calm, when I was surprised to see a swarm of bees pass through the rigging of the yacht and cross over from one side of the harbour to the other, the distance from shore to shore being about one and a half miles. Where they started from or alighted I could not tell.

Last year a swarm alighted on the pump-handle of a vessel lying in Cork Harbour, a few hundred yards from the shore.—Boz.

STOPPING BEES FIGHTING.

I had a flat-crowned straw skep which was so crowded with bees in the end of July that numbers of them used to cluster on the floor-board and outside the skep in the evenings and at night. Not being at home in the daytime, except very seldom, I was surprised one evening on seeing the walk and the ground near the hive strewn with dead bees and several about fighting. I could not at first imagine what was the cause, but on considering I remembered that a few days before a swarm issued from one of my other hives and alighted on the branch of a tree near where they remained until the day previous to the slaughter, when they went away, but I think they must have returned and attempted to enter this hive, which was the strongest stock I had, and thus caused the fighting both inside and outside the hive, as on the top of the skep under the straw super I found several, amongst the rest a humble bee, dead. I immediately smoked them well, sprinkled carbolic acid and water about on the outside of the hive and floor-board, and tapped the skep sides, and I saw no more fighting. I then took off the small super I had on, put a larger one on, and after a few days all the bees went inside the skep, and are now working well in the large super.—Boz.

COUNTY ASSOCIATIONS.

It appears to me that the way to make combination useful to bee-keepers, something of this kind should be done:—Establish small societies wherever a few bee-keepers are gathered together, under the charge of a local secretary—such society paying its own expenses and doing its own work,—paying a small sum towards the expenses of the County Association, in the way the Counties do to the British.

I may inform 'County Member' that for some time the bee-keepers here have adopted his notion of buying their comb-frames, etc. together, which in comb alone results in a large saving per lb. to each individual,—the county town is between forty and fifty miles away by rail, so a depôt there would be useless. The county, as the unit, is, in most cases, far too large and unwieldy for perfect success. It is all very well to say that it is not a 'high or noble' idea to want a material advantage from joining an association, but the fact remains that nine out of ten people do, and will.

I am not at all surprised people who criticise the county system do not sign their names; for to do so, that is, criticise, is sufficient to bring down a totally unnecessary amount of wrath on their heads. Why not debate their proposals and reason them out; instead of saying people want to wash their dirty linen in public? If Associations are not to stand criticism like other public bodies, better say so at once.—J. R. NEVE, *Campden, Gloucestershire.*

A SUGGESTION TO EXPERTS.

Being very anxious to gain every information upon bee-keeping possible, I attended a bee-tent yesterday, erected in the grounds of the Bangor Horticultural Show-yard, and would like now to say a word or two on a few things which occurred to me during the interesting lecture given by the expert who attended. He gave some very good ideas on 'feeding,' 'swarming,' 'driving,' 'transferring,' &c., but to my mind several of these performances lacked much interest, which would otherwise have been felt, had the expert practised on a bar-frame hive, as well as on a very small skep (the only one in the tent). Having eight stocks and swarms myself, four in bar-frame hives and four in eighteen-inch skeps, I was anxious to see some manipulations to show the great advantages which are said to accrue from the bar-frame management over the old-fashioned skep.

Others were in the tent who, like myself, were just beginning to feel their way to bee-keeping, and who own six or eight hives, and would much like such practical knowledge which could so readily be given in a similar place. Another thing I thought might have been improved upon, viz., the size and make of the skep used by the expert. It measured, perhaps, fourteen inches diameter, and the bees were very few indeed as compared with an eighteen-inch, or a twenty-inch skep of Pettigrew's make, such as I have. The expert certainly did his work well so far as he went, and showed capitally how the open driving was accomplished, and all he said and did seemed to convey the idea that the skep for all practical purposes could not be superseded by the bar-frame hives.

The lecture at 4.30 p.m. was very well attended, and these tent lectures would no doubt do very much to educate the people in bee-keeping, were the ideas I have mentioned added to the programme.—EDWARD OWEN, *Penmaenmawr.*

SENDING BEES TO NEW ZEALAND.

Will you inform me of a few particulars with regard to the sending out bees to New Zealand? I am anxious to know what is *the kind of clover* which in New Zealand before the introduction of *what kind of bee* was found to be unfertilised; and whether this failure of the plant to bring its seed to perfection in New Zealand (being itself an introduction there from England or Europe) was so truly *marked* that fresh seed has hitherto been always sent out thither to keep up the crops? Also, I should be glad to know what clover (as a crop) is fertilised, and by what bee, in New Zealand? Our English honey-bee gathers honey from both the red and the white clover-crops, but as far as I understand the indications given by the offered rewards, it is a humble-bee that is needed in New Zealand; and I wish to know exactly what bee it is, and for what clover its services are needed; and whether at last now the thing has been done so that the seed can now be perfected out there.—MACLEAR.

[We should be obliged if any of our correspondents would give us replies to the above inquiries.—ED.]

A BAD QUARTER OF AN HOUR IN THE FARM-YARD.

On Saturday, 25th of July, one of the late intensely hot days, my bees—which here let me remark are all black bees—suddenly seemed possessed by a spirit of mischief.

Looking out of the window at 1 p.m., I saw the gardener running towards the apiary, and feared a swarm had suddenly issued, but he reappeared in no time, with shoulders well up, and head down, in fact, retreating in a hasty and ignominious way. As he is no 'carpet knight' with bees, I ran out to see what had happened, and found that it was not a swarm, but that the back premises were full of angry and excited bees, and that the gardener had unfortunately left his jacket and veil on a gate, that was now in the centre of these infuriated insects, and he could not get near them.

The furies had first attacked two unhappy pigs, stinging them to such an extent that they had actually cleared the pig-stye wall, a feat they had never before accomplished, or attempted; following the 'unhappy ones' into the field, they met with, and served the donkey in the same way. My dog, who then appeared on the scene to see what all the row was about, was the next recipient of their most unwelcome attentions; finally, they attacked the cows, but these latter, wiser than the other sufferers, took the first hint, and with tails in the air, sped off to a distant part of the field, where they took refuge in a copse and so evaded their enemies.

During the intense heat, about the time named, the bees, although having, normally speaking, plenty of room, were hanging about in clusters, and it would seem as if this freak was only another illustration of work being found 'for idle hands to do.'

The only possible exciting cause that I can trace is, that the gardener had taken up some lemon thyme plants, and thrown them into the pigs. As both bees and pigs like these plants, the former may have objected to joint proprietorship with the latter, and fiercely resented being so unceremoniously rooted about while at their work, and the unhappy pigs certainly came in for the greatest share of their anger. There was no getting the pigs clear till they were driven into the cow-house and buckets of water thrown over them, and there they lay, not caring to move the whole day, and they were much swollen, and their appetites very delicate for the next twenty-four hours.

The bees were decidedly aggressive for a day or two after this incident, coming at one singly, whenever one was about near the hives, and having an occasional small 'go in' at the 'unhappy ones,' but now the weather is again cooler, there is not an idle bee in the apiary, and they have resumed their wonted amiability.—C. H., *North Devon.*

PACKING SECTIONS.

As I have seen many letters in your *Journal* on the subject of packing sections I feel inclined to mention the way I have adopted and found completely successful. I wrap each section in white paper and then pack them as tightly as possible into a wooden box exactly to fit the number sent. That box I then placed in a stout basket or hamper, about two inches larger every way, and I till up the spaces above, below, and on all the sides as tightly as possible with hay or shavings. The wicker-work and the hay both yield a little to any blow or jar and save the honey-comb from shock. All the honey that I have sent in this way, either by post or rail, even to long distances, has travelled safely.—A. M. S.

REMOVING SECTIONS.

I write to give my experience of following the advice given on page 202 in 'Useful Hints.' I tried it once, but do not intend to try it again, for the reason that I killed a great many bees, made them very angry, was more trouble than allowing the crate to remain, and took me longer to do; I think I also got stung. I take sections off weekly. So I returned to my own plan. I seldom get stung, kill the bees, or make them angry; and it does not take long to do. My plan is to allow the crate to remain on. I always take the whole of the sections off, rearrange them, putting those most filled in the centre, and the fresh sections at the outsides. I commence by taking the first row of sections out, shaking the bees off in front of the hive. I then put the divider at the bottom of the crate, covering the space made by taking out the first row of sections. I then proceed to take out the next row in the same way; and as I take each row out, I put down the divider, so that at last the bees are quite enclosed in the hive. I put fresh sections on by lifting one of the dividers at a time, beginning where I left off. I use a little smoke to drive the bees into the hive.—H. I. MALE.

AN OBSERVATORY HIVE UTILISED BY A SWARM.

The following may interest some of your readers, as I do not remember reading or hearing of a similar incident.

Last month, while staying at my home in the Isle of

Wight, I determined to utilise an observatory hive (which I had some time before made from directions given in your *Journal*), by placing it in position and filling it with driven bees. I accordingly one morning took the hive up into a loft over an out-house, fixed it at the window, and left it with six frames with half-sheets of foundation in it. This was about eleven o'clock. About four in the afternoon I went up to fit a dummy, and my surprise may be imagined when, on lifting the cover, I was greeted with a loud buzzing. I quickly replaced the cover, and opening the windows of the hive, saw a number of bees on the frames, though there did not appear to be enough for a swarm. I immediately went for my veil, &c., and, on examining, found a large swarm clustered in the cover, where they had just started comb. I put them on the six frames, put in a frame of honey and pollen, covered them in, and left them. When I returned to London at the end of July they had worked out all the frames to the bottom, had stored a good amount of honey, and were breeding well.

On examining the other hives I found the swarm had come from a skep containing an early swarm of this season, on which I had, about a week before, placed a super, as the bees were hanging out.

This incident appears all the more remarkable to me as the observatory hive was hidden behind a lattice window a good height above the ground, and away from the other hives.—P. W. B.

EFFECTS OF STINGS.

In reply to your correspondent in the *Bee Journal*, of July 15th on the 'Effects of Stings,' I beg to say I experienced the same result from a bee-sting on the fleshy part of my right thumb: in fact, I was quite ill all the day. I felt very faint and sick, my fingers and toe-nails turned black, also my lips, nose, and ears. I cannot exactly describe really how I did feel: enough only to say I never wish to feel the same again. When I got up in the evening, not having closed my eyes, sleep refused to come,—I looked as if I had just come out of my coffin. But I attended to my bees again in the morning as usual, taking of course extra precautions.—SILVESTER, *Ufton Court, Reading.*

INTRODUCTION OF QUEENS.

Last year I wrote you that I had made several trials of the 'Simmins' method' of queen-introduction, without a single failure. This season I have still further tested that method, and as yet have not met with the loss of a single queen, or any of the valuable time of the working force of the colony. I will explain my manner of using the 'Simmins' method,' as perhaps it may be of interest to some of your readers.

On the late morning of what bids fair to prove a pleasant day, I remove the queen I desire to supersede, and then close the hive. On the evening of the same day after the bees have all returned to the hive for good, I give the queenless colony a little smoke, and wait a few moments till the bees have all filled themselves with honey. When that peculiar 'hum,' so familiar to all bee-keepers, assures me that the bees are filled with nectar, and consequently in a very amiable condition, I allow the new queen to run in at the entrance of the hive, which hive I do not disturb or examine for four or five days afterwards, when I am well satisfied I shall find the new queen accepted, and busily at work depositing eggs, as a good queen should do. I usually prefer to make queen introductions at a time when the bees are busy gathering honey from the fields; still I have been successful in several cases when no honey was being gathered, I having fed the bees inside the hive for two or three days before the introduction was made, and continued such feeding for several days afterwards. I think this method to be *the* one that is natural, and in perfect keeping with the habits of the honey bee, and even if a small percentage of loss should occur, the great gain by not disturbing the working force of the hive will far overbalance such loss. I have a theory of my own in regard to this matter, but theories are of little value ordinarily, the facts themselves are only of importance; and any bee-keeper of experience is as capable of forming a theory as myself, and is perhaps more correct than myself if he differs from me. For the above reason, I state the facts only, and without trespassing on your valuable space to set out any theories, or possible vagaries, of my own. I hope this matter of queen-introduction will be fully tested, and that we shall have the results given us from many sources, so that we may be able by collation and comparison to ascertain some perfect method by which no losses can possibly occur.—J. E. POND, Jr., *Foxboro', Norfolk Co., Mass., U.S.A., July 2nd*, 1885.

TAKING BEES TO THE HEATHER.

I was very much amused by one of your correspondents (in one of the back numbers) describing how 'he took his bees to the Moors.' This will be my fourth season of removal, and perhaps a few particulars may be interesting, though not so amusing as those of the correspondent I refer to.

Well-arranged two-storey hives I find the best for this district. A day or two before the time I take off the upper storey, leave the brood chamber full of combs (11 and 1 dummy), put on a crate of sections, properly arranged to quickly and easily secure the frames and bees, then with a goose-wing brush all bees of surplus combs on to front of hive, and leave them. The night before removal I close the bees in and open the ventilators (these are in the floor-board—the most safe place for them). The dray comes early next morning, we pack our hives on with combs at right angles to the axles (because the roads are 'very hilly'), and then off at a trot on the level road. Last year we went to Ringinglowe, about 1½ hours from this. An old skeppist, who takes charge of the bees for the season, was looking out for us. We soon have them in place, and, first giving a puff of smoke to check the stampede, open the slides, put on the quilts, and they are ready for work. Long hives that cannot have a crate of sections on before leaving home, have them put on at once, and I always find the bees better-tempered than they are next day. Afterwards we have time to look round and see how many friends already have their bees there, and learn who are still expected, so that we may make up a jolly party to 'go and see how the bees are getting on at the moors.' This is always an enjoyable walk, especially when, as last year, you lift out comb after comb filled with rich golden honey. After enjoying a dish of ham and eggs for dinner, we start for a walk across the moors, and thoroughly enjoy the bright sunshine, the keen, bracing air, and healthy exercise for our muscles and lungs. We note the forward state of the heather, just tinging the moors with a faint purple; we stay to admire the grandly beautiful yet wild scenery, and again, to drink from the sparkling, sancy, moorland streams dashing along at our feet. One of my companions, Mr. Chester, who is also a lover of ferns, stops frequently to point out and name his pets. I, who do not know ferns scientifically, admire them for their beauty and healthy bright green colour. Often we linger to gather cranberries, and watch the startled moorland sheep, and listen to the wild cry of the peewit, or the whirr of the frightened grouse.

Sheffield is very smoky, but the country round about is very beautiful. After a walk of ten or twelve miles we reach Bamford, and again do justice to Derbyshire fare, kindly provided by Mr. Wallworth, a bee-keeper, who is gradually changing his apiary of skeps into frame-hives. We look over some, and find them very strong,

and eager to try their tiny stilettoes on us. His large Pettigrews are quite a sight to see. Staying to gossip about bees, we miss the Sheffield coach, and have to face a walk home of twelve miles, after which we do not need rocking to sleep.

I hope in time we may gather a strong and happy club of bee-keepers (for there are many clever ones in this district), and that taking the bees and going to see them will be times looked forward to and remembered with pleasure.

I find it profitable, and think I have learnt something about the best hives for, and the best way to move bees to, the heather. I also find bees kept on the moors are stronger and more vigorous for their life in the strong bracing air.—W. T. Garnett, 42 *Sharrow Street, Sheffield.*

SHOWS AND BEE-TENT ENGAGEMENTS.

Nottinghamshire.—Aug. 26, Retford; Sept. 2, Clarborough; 22, Radcliffe-on-Trent.

Worcestershire.—Aug. 18, Madresfield Court; 20, 21, Annual Show, Worcester.

Buckinghamshire.—Aug. 19, High Wycombe, entries close Aug. 10.

Warwickshire.—Sept. 2, 3, County Show, Leamington; 8, Bedworth.

Shropshire.—Aug. 19, 20, Quarry, Shrewsbury.

Somersetshire.—Aug. 17, Street; 20, North Perrott; Sept. 9, Banwell, near Weston-super-Mare.

Hampshire and Isle of Wight.—Sept. 9, 10, 11, Romsey.

North-east of Ireland.—Sept. 11, Belfast.

Bee-Keeping in North London.—Lady Burdett-Coutts, in order to encourage the keeping of bees by the working classes, lately made an offer to each of the holders of gardens on the Allotment Grounds at Highgate New Town of a beehive. The offer was accepted by six of those to whom it was made, and the beehives with appliances have been delivered to them by Mr. Abbott, of Southall. The bees of two of the hives, however, have since flown away.

The English and Roman Law on Bees.—This was was an action by Thos. Webb, a clerk in the office of Mr. Asher Prior, solicitor, against J. S. Maberley, a clerk in the Colchester Post-office, to recover 30*s.* damages for a swarm of bees which defendant had 'converted to his own use.'—Mr. Asher Prior appeared for plaintiff, and Mr. H. W. Jones appeared for the defendant.—Before the case was called on, his Honour said he would explain the law on the subject. Bees were naturally wild, and the person who first hived them would be considered the owner. A swarm of bees flying from a person's hive would be considered his while he kept them in sight, and while the pursuit was not difficult. If the owner lost sight of the bees, then he could not claim them. The English law on bees was taken from the Roman law, which set forth that if bees swarmed on another man's land, and were removed by the owner, the latter could not be proceeded against except for trespass. The owner of the bees might, however, be prevented from entering. It appeared that the bees in question, which defendant alleged were his property, had swarmed in a garden near the General Post-office, and defendant had hived them and taken them home.—His Honour directed a non-suit, remarking that plaintiff had not shown that the bees were his property, and he (his Honour) held that he had no title to them.—*Essex County Chronicle.*

A Station stormed by Bees.—An extraordinary affair occurred the other morning at Battersby Junction, a small station on the North York and Cleveland Line, which was fairly taken possession of for a few hours by a colony of bees. It appears that an ordinary straw hive full of bees was being conveyed per passenger train from some station in the north to the moors around Commondale for the summer. At Battersby Junction, a young man in transferring the hive from one train to another, incautiously lifted it by the top instead of by the sides. The loose cover came off in his hands, and the lower part of the hive fell to the ground. Then ensued a scene which almost passes description. The infuriated bees swarmed out by thousands, and commenced stinging right and left, clearing the station of passengers, officials, and all in less time than it takes to write it. Those already in the train quickly closed the windows and doors against the unwelcome visitors, but not before a number of the winged terrors had gained admission. A Stockton gentleman, with his little boy, were standing near the hive when it fell, and both were dreadfully stung. The train had to be run some distance out of the station to permit of the passengers getting out. The bees remained in undisputed possession of the station for two or three hours. During the afternoon the apiarist arrived, and managed to get the troublesome 'army of invasion' coaxed into the hive again and removed.

Honey Drinks.—These are well worthy of notice. First, I will give the recipe for the compounding of the honey. It is stored in one-pound, two-pound, or larger jars, according as it is likely to be on demand. Weigh into the jar one pound strained virgin honey; stand the jar in boiling water. When the honey is quite thin, then make, we will say—*Black Currant Honey.*—You drop in half an ounce black currant essence, and stirring it in add quarter of a pint of cognac. Lift the jar out of the water, wipe it dry, and, when cold, tie down with parchment paper. *Peach Honey* is prepared by mingling with one pound of strained honey, whilst warm, a quarter of an ounce of essence of peach, and a quarter of a pint of cognac.—*The British and Foreign Confectioner for August.*

Catching Swarms.—Our bee-keeping friends will be glad of the following 'For catching a swarm of bees.' There are still extant in country places many charms thought efficacious for staying the flight of a swarm of bees. Here is the method of our forefathers:—'Take earth, and throw it with thy right hand under thy left foot, and say:—

> '"I take under foot, it might I find;
> What earth may avail against every kind
> Of hatred and wrong
> And man's mickle tongue."

'Then throw some gravel where they swarm, and say:—

> '"Sit ye down, ladies, to the ground sink,
> Ne'er be so wild as to fly to the wood;
> As each man is mindful of his meat and drink,
> So be ye mindful aye of my good."'

Echoes from the Hives.

North Leicestershire.—August 5th was the close of the longest and best honey season in an experience of over thirty years. July was excessively hot and dry: only ·07 in. of rain fell. After one slight shower, the bees attacked the honey-dew, and spoilt a good many sections. The honey of this neighbourhood is exceptionally fine this year.—E. B.

Antingham Road, near Walsham, Aug. 5.—On June 4th I had a swarm from a ten-frame hive; it weighed 5½ lbs. It is now August 4th, just two months since the swarm, and I have taken off sixty pound sections filled and sealed. I put the swarm of 5½ lbs. in an eight-framed hive, giving them one frame of comb; the others were full sheets of foundation. I fed gently for a week; on July 11th, seven days from swarm, I noticed larvæ. I then put on a crate of twenty-four pound

sections. On the 20th I took off one section. Since then I have taken them off weekly, as follows:—On June 26th I took off ten; July 2nd, five; July 10th, eight; 16th, six; 23rd, seven; 29th, thirteen; Aug. 4th, ten. I have now a crate of twenty-four sections on, several of which are nearly or quite filled and sealed. I had one stock in the spring from that. I have had 15½ lbs. of honey and two swarms, one weighing 5½ lbs., the other 2½.—H. I. Male.

Lydney, Gloucestershire, August 8.—The swarm which I hived on the 1st of June (it left the skep on the 31st of May) has, I think, done well. By the 28th of July I had taken eighteen 1-lb. sections, all full and sealed. I replaced them with more sections, but, owing to some mistake, I had no foundation to start them with before leaving home on the 28th of July; nevertheless, I believe they are working in the sections.—J. H. L.

Bishop's Waltham, Hants, August 10.—Since my last notes were sent we have had really splendid weather for the bees, and honey has been abundant, but is now coming in of a dark colour, which, with us, I am afraid, is a sign of the end of the honey harvest being near. Weather, the last few days, windy and showery.—A Hampshire Bee-keeper.

Kirkandrews Rectory, Longtown, Cumberland, August 11.—As this has been an unusually good honey season in this part of the country, it may interest you to know the weights which I have taken from two hives in my apiary. I only quote these two, but most of my other hives have done nearly equally well. The hives are both old ones, some of the frames being four or five years old, but the queens in both hives are young ones of last year. On No. 1 hive the sections have all been 1½ lb. (5 × 5 inches). On July 15th I took off two crates of sections all well finished. In the first crate were twenty-seven sections, 43¾ lbs.; in the second crate were twenty-one sections, 30½ lbs.; on August 3rd I took off a third crate of twenty-seven sections, 36¼ lbs.; and on August 11th I took off a fourth crate of eighteen sections, 23¾ lbs., making a total of 134¼ lbs. There is a fifth crate of sections still on the hive; and if the weather is fine enough for the bees to go to the heather they will still store a good weight, but they have to fly a considerable distance to the heather, and it is only in the very finest seasons that they gather much. On No. 2 hive, on July 15th, I took off, first crate of twenty-seven sections (1½ lb. each), 42¼ lbs.; also, July 15th, second crate, twelve sections (1 lb. each), 11¼ lbs.; on August 1st, third crate, thirty sections (1½ lb. each), 45¾ lbs.; and on August 11th, fourth crate, twenty-eight sections (1 lb. each), 27¼ lbs., making a total of 126½ lbs. This hive I am going to take to a cottager's garden about six miles off, close to the heather, and if only next month is favourable for honey-gathering, I expect a great result. I may state that I have not yet extracted any honey from the frames, but I shall no doubt extract a considerable quantity from them both at the close of the season. I think you will acknowledge the above statistics to be highly satisfactory. The honey is nearly all from the white clover, and of very superior quality.—Frank Taylor.

Kingston, August 13th.—Bees are doing well in this quarter; they have had a splendid season up to last week, any amount of brood, several fine swarms, and honey coming in fast. I have taken off several prime sections, and have had a ready sale for them. I think the honey harvest is now over, *i.e.*, for this season in this neighbourhood, the first crop coming from the fields, the latter from the limes, of which there are many fine trees in Home Park. My Ligurians have disappointed me most, for they have not filled a single section, although they have well stocked the main hive. The hybrid little demons (I beg their pardon) have outdone the blacks or Ligurians in population, filling sections, and stings by a long way,—but, hybrids, with all your stings, I love you still.—Herbert Crawley.

Ballinacara, Co. Cork, Aug. 4.—I am sure I am but one of many that read with great pleasure of Mr. Cowan's appointment to the Editorship of our *Journal*. I have no doubt that in his hands the paper will flourish, and its readers be both pleased and instructed. A capital honey year here is just coming to a close. All stocks are killing off the drones, and sealing up the sections preparatory to wintering. Still I hope for more honey if we had a little rain, as three-quarter acre of buckwheat is in bloom, with quarter-acre mustard to follow. These should tide over the time until September, when ivy blooms. Some days since a hive over full of bees, not able to work for want of room, clustered inside and out of hive with one crate of sections on, but not ripe enough to seal, as preparations were just made to double sections. An internecine war broke out, which lasted two days, and ended only then by the help of the smoker most vigorously applied, when the hive was full of dead and dying bees to the bulk of a full swarm. Does it not look as if they thought it too late to swarm, and in their wisdom killed off those that would soon die naturally?—John J. Smyth.

Foxboro', Norfolk Co., Mass., U.S.A., July 2.—The season so far here has been very fine. The weather has been cool for the season, but the bees have gathered more than the average of honey, as we have had but few rainy days. But little swarming has taken place as yet so far as I can learn; with myself I do not allow natural swarming at all, and as I keep but a few colonies for experimental purposes only I can easily prevent it. I am an attorney-at-law, and keep bees as a means of recreative amusement. I get honey enough for myself and friends, and that is all I care for; I feel more interest in the study of entomology than I do in getting large crops of honey, and devote all my spare time to my apiary. I am exceedingly sorry to learn as I do in June 15th's *Journal* of the death of Rev. H. R. Peel; truly the bee-keepers of the world have met with a great loss and the bee-keepers of England with the loss of a great friend. I have taken your *Journal* for many years, and find it of great value. Long may it live and meet with the support it deserves.—J. E. Pond, Jun.

Australia.—[*Extract from a letter of a Member of the Worcestershire Bee-keepers' Association, ordered out with another brother on account of bad lungs to Australia.*] 'I will tell you what I did yesterday morning. W. had been out shooting, and discovered a bee-tree; we went there and cut the tree down. I then smoked the holes where they went in and out, and cut a piece out of the tree with the axe, and with my hands began getting out the comb, to the great surprise of all the people here who came down to look at the performance. Eventually we split up the tree and took out about 56 lbs. of honey and comb, and drove the bees into a box and brought them away. The spoil consisted of five combs 5 feet long each by 5 to 8 inches wide. Nobody in these parts has seen bees handled like this before. I picked out a handful and offered them, and you can perhaps imagine how amazed they were. The bees, I believe, are similar to our English blacks. The nest was 30 feet from the ground.'—H. J. J., *Yelima (on the Murray River, Victoria), 16th June*, 1885.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Miss Quin.—*Price of Condemned Bees.*—If you give cottagers sixpence a stock, or even a shilling, it will be fair. Of course if you buy them of someone who has had the trouble of finding them and driving them, you will pay more for them. Take them as early as possible and give them ready-built combs.

F. Warr.—*Transferring June Swarms to Frame-hives.*

—You may do it now, but care is required, as the combs are tender: in another two or three weeks, when the weather is cooler, you will find it easier.

W. E. B.—1. *Late Hatched Queens.*—A queen raised now will not be likely to meet with a drone a fortnight hence, unless you have a queenless stock into which you may put all drones remaining in other hives and so preserve them; queenless stocks do not turn out drones. The young queen which you found behind the excluder we should think had gone there to escape another existing in the hive and which you overlooked. If no queen-cells are raised on the comb of eggs which you gave, you may know that a queen exists; by the time you read this she will probably have commenced to lay. 2. *For Winter Covering next the Frames.*—Ticking is better than unbleached calico and over the ticking a shallow box having canvas for a bottom, and filled with chaff or cork-dust, is a good arrangement. 3. *Leaving too many Combs in Hive in Winter.*—Yes, there is an objection, viz., that the moisture from the bees is apt to condense on the unoccupied combs and render them mouldy, and also that the smaller space the bees have to keep warm by the natural heat the less consumption of food they require. Your comparison of a hollow tree is not quite to the point. The combs are built down the side, and thus confine the heat, which in a frame-hive passes round the frame-ends.

E. Owen, *Penmaenmawr.*—*Feeding Swarms.* Until the combs are built out and after that, if the weather prevents honey gathering. A Bee-keepers' Association was established in Carnarvonshire during the year 1884. For names and addresses of officers apply to Mr. Huckle, King's Langley, Herts; also consult him respecting the arrangements for examinations at County Shows of candidates for certificates.

E. P.—*Frames given to Bees to clear out.*—They will not clear out the pollen, which will get dry. When the combs are given back to the bees they will, if they find the pollen useless to them, then clear it out.—*Honey Labels.*—These are supplied by Messrs. Abbott, Blow & Ellis, and other dealers.—The reduction in the number of your bees is to be attributed to natural causes, not to the issue of an unperceived swarm.

Northumberland.—1 and 3.—*Swarms.*—Give ready-built combs if you have them, or, if not, full sheets of foundation. 2. *Supers.*—An inch deep of foundation, or triangles reaching nearly to the upper corners of the sections, and the point within an inch of the bottom.

A. M. S.—1. *Perfection Feeder.*—The liquid is no more liable to drip through the holes of the Perfection Feeder, if it be kept in a level position, than through the meshes of a piece of canvas tied over a bottle and inverted. Experience has proved that *water* alone will not drip from the Perfection Feeder, much less syrup. The fall of level of syrup in bottle is evidence enough of what bees have taken. If it did drip it would soon show on the bottom of the floor of hive. 2. *Moving Bees.*—Fasten bees in the hive at night, and give ventilation by means of perforated zinc at top, and move away in a light spring cart. Very few or no bees will return to the old place.

G. A. R.—*Unsealed Combs.*—There is no plan by which you can compel the bees to seal the combs. Their refusal to do so probably arises from a twofold cause—the superseding of an aged queen and the cessation of the honey-flow. We advise you to pass combs and sections through the extractor.

Crabro.—1. *Width of Hive.*—Since the rectangle of the Standard frame is 14 in. wide, if the width of the hive be more than 14½ in., there will be a greater space than ¼ in. between the ends of the frames and the sides of the hive, and in these spaces the bees will build combs, and by so doing will make the frames fixtures. A 14½-in. entrance is wide enough for any colony, but if you think otherwise, it is an easy and simple matter to open entrances on the sides as well as in front, and to close them with slides for the winter months. 2. *Huber.*—There are numerous English translations of Huber's *Observations on the Natural History of Bees.* Edinburgh, 1806, 1808, 1821. London, 1841. The work is occasionally to be met with on book-stalls.

W. J. H.—1. *Requeening by Uniting Cast.*—After removing the old queen, remove the bar-frame from its stand, and put a skep on a large board in its place, brush the bees off the frames on to the board; they will run into the skep and cluster in it. Replace the bar-frame on its stand with a large board sloping to the ground, throw the bees on to the board, and as they run in, throw the driven cast on to them; they will unite peaceably *without any scented syrup.* 2. *Heating Honey.*—Honey heated will not granulate so quickly as if left to itself, but heating it spoils the flavour to some extent.

W. F. A.—*Taking Condemned Bees after Dark.*—It is possible to operate with bees in lamp-light, but you will find it rather difficult. We should recommend close driving, *i.e.* place the empty skep closely on the the other, and wrap a cloth round to confine the bees. Then drum them up in the usual way. You had better operate in the open air than in a building. Cannot you do it in the morning before going to work? If so, do so. You will find daylight far better for the operation.

F. C. Andrew, *Minorca.*—1. *Balearic Bees.*—We should not from the description designate your bees hybrids. The probability is that they were when introduced into the island congeners to Ligurians; but climacteric influences for many generations have given them their present special markings. 2. *Honey Seasons.*—Your longer abode in the island will make you conversant with the peculiarities of the climate, and the times when the trees and the plants put forth their flowers; and our advice to you, as to all bee-keepers, is, Be prepared for these natural outbursts, and by keeping your stocks strong, take the best advantage of the pasturage then presented to them, and by the condition of your hives you will be able to discern the best time for putting on supers. 3. *Moving Bees.*—The autumn would be the preferable time for moving bees, and the closing the entrance 'for a few minutes' would not affect them injuriously. 4. *Position of Hives.*—A vineyard is not the best place for hives; the neighbourhood of fruit-trees is much to be preferred.

R. Carter, *Ullesthorpe.*—1. *Painting Hives.*—Hives may be painted with the bees in them; but we would suggest that you should use quick-drying paint, and that it be done in the evening. 2. *Frames for Wintering.*—Six frames in your hive will be enough, provided that they are well covered with bees.

Lordswood.—The sample of sugar forwarded will be found suitable for making syrup for feeding bees.

Thomas Fisher.—*Earwigs. Swallows.*—Earwigs do no harm to the bees. They simply seek the covering of the quilt for warmth. Whether swallows take bees or not is a disputed point. We are disposed to think that they feed upon smaller fry, and that sparrows do tenfold injury as compared with swallows.

John J. Candy.—The honey forwarded would have been of a lighter colour had it been gathered from clover; it evidently has been got from a mixture of flowers. 2. *Removing Sections.*—If the queen has room in the body of the hive to breed, leave frames until sections are removed; otherwise, remove the sections, and take out as many frames as are needed, and replace with empty combs.

J. BEER, *Worrington, Wingham.*—Comb is badly diseased with *Bacillus alvei.*—F. C.

A. J. RAYMENT.—*Straightening Crooked Combs.*—The best time for straightening crooked combs will be in the autumn, when the brood will be almost wholly hatched.

ALFRED ELLIS.—*Bees carrying out Dead Grubs.*—If the bees carry out drone-grubs, it is because they are now no longer wanted; if worker-grubs, it is a sign of starvation.

MISS S. M. HAYLEY.—*Uniting.*—Take No. 1 or No. 2 to a distance of two miles, and after a week's absence bring them together,—either to No. 1 or to No. 2, and then unite them. Let the bees settle as to which of the queens should survive. If No. 3 is to be united to No. 1, it will be necessary to capture and destroy the queen of No. 1; then cage the queen of No. 3 forty-eight hours, and take the usual precautions when uniting.

J. H. L.—You are quite right in presuming that the queen in the skep is a young one. *Transferring.*—The autumn would be a suitable time for this being done. We would recommend you to consult Cowan's *Bee-keepers' Guide-book*, p. 132, for the best method of transferring.

LEONARD BROWN.—*Extracting Wax.*—If only a small quantity, put into a sieve, and place this over a pan of water, and put it into the oven, which must not be too hot. The wax will melt, and drop into the water, and impurities remain in sieve. It will cake on top of water when cold. If a larger quantity, we would suggest the method recommended by Mr. J. M. Hooker, see Cowan's *Bee-keepers' Guide*, p. 79.

CELER ET AUDAX.—*Judging.*—We believe the judges were right in their award.

*** *Report of Buckinghamshire B.K.A. and several other communications will appear in our next.*

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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

[No. 177. VOL. XIII.] SEPTEMBER 1, 1885. [PUBLISHED FORTNIGHTLY.]

Editorial, Notices, &c.

'MANUFACTURED HONEY.'

The first work that came to our hands when we entered upon our vocation as a bee-keeper was that of Langstroth on the *Hive and the Honey Bee;* and though these 'salad days' have long passed away, we have never forgotten the wondrous fascination of his charming style and the practical information we derived from the perusal of his work; and deep and sincere has been the gratitude we have ever since felt towards this 'old man eloquent' for all the pleasure and the instruction we received from his teachings. There was, however, one passage in his book which we would fain have wished had been omitted, and that was his 'recipe for making a beautiful liquid honey, which the best judges have pronounced one of the most luscious articles they have ever tasted.' 'Making honey!' What an incongruity of language! Honey is the symbol of all that is natural, pure, and genuine; honey has been the theme of poets from the time of 'blind Mæonides' to the present day; honey is the joy of age and youth; honey is the sweet, rich, bright 'effluence of the essence' of flowers, the most delightful and delighting of all the productions of Nature; and we can never see the words 'artificial' or 'manufactured' conjoined with it without uttering an internal protest.

We are, however, too apt to think that adulteration is confined to American honey; but the denunciations of honey mingled with glucose, &c., have been uttered as earnestly and as frequently by American as by British bee-keepers. In Cowan's *Guide-book* are to be found extracts from American journals, stating the extent to which adulteration is practised in that country and vigorously denouncing the practice. It is not only in New York or Chicago that this so-called honey is manufactured. In Switzerland this 'manufacture' is carried on to a large extent; the analysis of Mr. Otto Hehner informs us that the 'Finest Swiss Honey,' and the 'Finest Swiss Table Honey,' are 'to a certainty adulterated;' and yet this honey is to be found on the tables of all the Swiss hotels and is said to be much relished and patronised by English travellers.

But why need we look abroad? In our own country the manufacture of honey is carried on largely. Our attention has recently been directed to a wholesale price current of a City firm in which '——'s Manufactured Honey' is advertised; and by it we are informed that 'the success of this article seems assured, and that the orders have come in so rapidly that the manufacturers have been unable to cope with the demand.' We have not handled or seen or tasted this 'article,' and therefore are unconscious of its virtues. It may be a most luscious product, and suitable to the British palate; but why call it 'honey'? Is not our language rich enough in itself to give it some other name, or would it not have been possible to derive from the Latin or the Greek some other appellation than that of our much-loved and time-honoured term 'honey!' Honey is associated with our earliest (we had almost written 'our holiest') ideas of all that is sweet, pure, and perfect. The Royal Psalmist can find no loftier comparison of his love to the 'words' of God than to honey,—'honey and (do we not almost hear the smacking of the royal lips?) the honeycomb.' 'How sweet are Thy words unto my taste, yea sweeter than honey to my mouth.' The Wise Man shows his appreciation of the virtues of honey by the wholesome advice he gives: 'My son, eat thou honey, because it is good; and the honeycomb, which is sweet to thy taste.' The Easterns, when they wished to describe the advantages and fertility of a country, speak of it as 'a land flowing with milk and honey.' And therefore is it that we have so decided an objection that this grand superlative word should be degraded to that of a humble positive by its association with such adjectives as 'artificial' or 'manufactured.' Are bees to be superseded in future by the devices of ever-meddling Man? Are we to pronounce that their 'occupation is gone'? Is honey to be paled before the light of this new production? Not yet we opine. Never was there a time when the culture of bees was more attended to; and never was there a time when men's minds were so exercised as to discover fresh outlets and new utilities for honey in the shape of confections, drinks, medicines, &c. We believe that yet there is a great future in store for the products of the honey-bee; and we trust that pure, unadulterated honey will ever hold its position, and that our friends of the British Honey and Fruit-farming Companies will put forth every

effort to penetrate to every hearth and home, and to establish the virtues of pure honey and to prove to a discerning public the superiority of British honey, not only to the 'manufactured article,' but also to that which is so largely imported from foreign countries.

USEFUL HINTS.

Owing to the long-continued drought the principal bee-flora has been destroyed, and there is no source left from which bees can obtain a supply of nectar, save, perhaps, from that northern Eldorado, Scotland, where the heather may still afford pasturage. The honey-harvest of 1885 may be said, therefore, to have closed.

The results have certainly been satisfactory judging from the reports in many districts, but in others not more than half the quantity of honey stored last season has been obtained. Natural swarming has been far more prevalent, and when such is the case the honey yield is invariably less. In our experience this is not a necessary result when a right system is adopted; but so few bee-keepers have the time, knowledge, or opportunity, for conducting natural swarming on a sound and safe basis, that we generally find, at the close of a season like the present, maiden swarms in abundance, queenlessness, and a very moderate yield of honey in consequence of so extensive a division of colonies.

Queenless Colonies.—Where such colonies have dwindled considerably there are two ways of dealing with them:—1st, By uniting to another colony, which is perhaps the simplest and best method, causing little trouble or labour, and being easy of performance and certain in result. 2nd, By obtaining a couple of colonies of driven bees, uniting them, and putting them in possession of the combs and hive of the queenless colony, on its own stand, the rightful owners having first been brushed from the combs, and allowed to run in with the supplanters. If an increase of colonies is desired—or, rather, the keeping up of the present number—the latter plan is desirable. The combs of such colonies generally contain a larger amount of bee-bread than is required or desirable for wintering, and two or three of these may be removed and stored in a dry place for use at spring, when they will be of great service for stimulating brood-rearing. By no means attempt to introduce single queens—valued or not valued—to queenless colonies possessed of few bees, as such attempt will invariably result in disappointment and loss. From queenless skeps drive the bees and unite them to other hives.

Introducing Queens.—This should be done at once, not later than the middle of the month, and only to full and strong colonies. When brood in all stages exists, remove the old queen three or four days before introducing the new one, and cut out all queen-cells before caging the latter; then, in a pipe-cover cage, place her upon sealed honey, close to brood, either with, or without, two or three attendant workers. Before releasing the queen ascertain whether more queen-cells are in course of formation, and cut away all such before attempting to set her free. Twenty-four hours' incarceration is usually sufficient. On raising the cage, if the queen is seized, or attacked, cage her again for a like period. Let the operations be performed in early morning or late evening, to avoid the entrance to the hive of strange bees, than which nothing is more irritating to a colony.

Extracting and Removing Supers.—All such work should be performed without delay, and the hives carefully covered and warmly packed to promote breeding. Extracting, where hives are clogged with honey, to give room for breeding, and to stimulate the queen thereto, by replacing the extracted frames in the centre of, or near, the brood-nest, is an important operation which admits of no delay at this late season. Extracted sections may be placed above with the same view, but should be removed after twenty-four hours, and enamel cloth and quilts replaced.

Uniting.—Where it is required to strengthen weak colonies by the addition of driven condemned bees, the outer combs should be removed from the colony and the driven bees placed upon them. After allowing them a few hours in which to settle down, remove whichever queen you wish to destroy and cage the other, alternating the combs of both hives in one and thoroughly smoking after covering up. If any fighting is noticed at the entrance, after an interval of ten minutes, smoke again, and again. In the case of skeps in which the bees are on combs the bees must be driven from both skeps, one of the queens removed, and while the bees with reserved queen are running into their hive the queenless colony must be jerked out upon them.

Drones are often retained in hives where the population is small for covering the brood and keeping up the heat; their presence, therefore, is by no means a sure criterion of queenlessness. A colony in our apiary, whose queen was lost on her wedding trip, having raised another from an inserted queen-cell, which has filled three combs with brood, still retains a mass of drones. The workers having dwindled to about one third of the population, the drones are closely clustered upon the brood, and at present there appears no disposition to destroy them. So truly does instinct, or nature, provide for the preservation of species.

Feeding.—Let feeding, wherever necessary, be carried on freely. All colonies should be fed up to full weight for winter during the present month.

Carniolans.—Having given this race a fair trial during the last two seasons, we can speak most favourably respecting it. As a lady's bee, it cannot be surpassed, its gentleness, and indisposition to sting, is almost past belief after handling Syrians and Cyprians. It is a good honey-bee, and not more given to swarming than most other races, as far as we can judge at present. The worker is a large bee, and the silvery appearance, caused by the abdominal rings of white hairs, is very pleasing. At this late season we are raising queens in nuclei, so highly do we esteem it.

THE BRITISH BEE-KEEPERS' ASSOCIATION.

The next Committee Meeting will be held on Wednesday, September 16th.

The next Quarterly Meeting of County Representatives will be held on Wednesday, October 21st. Notices of motion for this meeting must reach the Secretary on or before Wednesday, September 23rd.

GLOUCESTERSHIRE BEE-KEEPERS' ASSOCIATION.

An examination for the third-class experts' certificate was held in connexion with the Annual Show at Gloucester on July 28th, and certificates were awarded to Mr. W. D. Slade, of Cheltenham, and to Mr. A. Zachary, of Cirencester. The Rev. Dr. Bartrum acted as examiner and judge.

NOTTS BEE-KEEPERS' ASSOCIATION.

We note that the Committee of the above Association have decided to hold a Honey Fair, for the disposal of members' honey, and have engaged premises at Mr. Laslett's Mart, Market Street, Nottingham, for September 17th, 18th, and 19th. We hope that this venture will prove as great a success as those of a similar kind which have been held in other parts of the country.

ASSOCIATIONS.

BUCKINGHAMSHIRE BEE-KEEPERS' ASSOCIATION.

At Buckingham, on July 28th, in connexion with, yet in a sense independent of, the Horticultural Society, there was a splendid exhibition of honey, both extracted and in section boxes, and for which prizes to a considerable amount were offered by the Buckingham Bee-keepers' Association to the members of the Association generally; and also other prizes offered by the late Rev. H. R. Peel, of Thornton Hall, and H. Hearn, Esq., Buckingham, these latter prizes being restricted to members residing in Buckingham district only. In these competitions Messrs. G. Winterburne, J. Prior, and R. Holland (Buckingham), J. Pollard, Tingewick, W. Daniels, Maids Moreton, and W. Sturdy, Thornton, were very successful, showing some really excellent honey. Mr. Blow was present and gave some short addresses on the science and art of bee-keeping; as was also the Rev. F. Sclater, the County Secretary. The Rev. J. L. Seager, Stevenage, Herts, officiated as Judge of the honey exhibits; and Mr. Stonhill had a small tent replete with modern bee-appliances for which he effected sales and took orders. The stock of honey on exhibition and sale was large, generally of a superior quality, and the show altogether in every way satisfactory to its promoters. The awards of prizes are as follows:—

Honey prizes offered by the Association:—1. Best display of honey in sections: 1, silver medal and 10*s.* 6*d.*, Mr. E. J. Ridge; 2, 7*s.* 6*d.*, Mr. Henley; 3, 5*s.*, Mr. J. B. Greaves. 2. Best display of extracted honey: 1, 7*s.* 6*d.*, Mr. G. Winterburn; 2, 5*s.*, Mr. Jason Prior; 3, 2*s.* 6*d.*, Mr. Mitchell. 3. Best non-sectional super: 1, 4*s.*, Mr. G. Winterburn; 2, 1*s.*, Mr. R. Garratt. 4. Best and largest display of comb honey: 1, Mr. G. Winterburn. 5. Best display of comb honey in sections: 1, 7*s.* 6*d.*, Mr. W. Daniels; 2, 5*s.*, Mr. G. Winterburn; 3, 2*s.* 6*d.*, Mr. G. Pollard. 6. Best display of extracted honey in jars: 1, Mr. J. Pollard; 2, 4*s.*, Mr. J. Prior; 3, 2*s.*, Mr. G. Winterburn.

Honey prizes, group No. 2, open only to members residing in the Buckingham District. Prizes offered by Rev. H. R. Peel, Thornton Hall, and Henry Hearn, Esq., Buckingham.

7. Best display of honey in 1-lb section boxes: 1, 7*s.* 6*d.*, Mr. J. Pollard; 2, 5*s.*, Mr. W. Daniels; 3, 2*s.* 6*d.*, Mr. W. Sturdy, Thornton. 8. Best display of honey in 2-lb sections: 1, 5*s.*, Mr. R. Holland, Buckingham. 9. Best display of extracted honey in glass jars (not less than ten in number): 1, 7*s.* 6*d.*, Mr. J. Pollard; 2, 5*s.*, Mr. W. Sturdy; 3, 2*s.* 6*d.*, Mr. G. Winterburn.

At the Colnbrook Flower Show on Aug. 3, the Association had a tent in the grounds, in which illustrations of bee-driving were made during the day, under the superintendence of the Rev. F. Sclater, the County Secretary. In another tent were exhibitions of honey and various appliances connected with bee-keeping, a useful and valuable show being made by Messrs. Abbott, of Southall. A number of prizes were offered by the above-named Bee-keepers' Association, the following being the awards:—

Best display of comb honey in section boxes: 1, 10*s.* 6*d.*, Mr. Walter Guest; 2, 7*s.* 6*d.*, Mr. G. Bartlett; 3, 5*s.*, Mr. A. G. Fleming. Best display of run extracted honey: 1, 7*s.* 6*d.*, Mr. S. Mitchell; 2, 5*s.*, Mr. G. Bartlett; 3, 2*s.* 6*d.*, Mrs. Meeking. Best non-sectional super; 1, 4*s.*, Mr. A. G. Fleming; 2, 2*s.*, Mrs. Meeking. Best and largest display of comb honey, exhibited at the Show: Prize, 10*s.*, Mr. W. Guest.

Mr. Stewart kindly acted as judge.

A large and successful Exhibition of Honey was held by the Association at High Wycombe, in connexion with the Flower Show, on August 19th. The Rev. George Raynor kindly acted as judge, assisted by Mr. R. J. Bayes. The quality of the honey exhibited was most excellent, and the competition for the prizes very keen. It may be mentioned that the bronze medal, offered for the best display of comb-honey, was taken by the silver medallist at the recent Buckingham show. Through the energy of the Rev. E. Clay, of Great Kimble, a depôt for the sale of bee apparatus has recently been established in the Risborough District, and at the show much interest was shown in the stand of hives and appliances provided from the depôt. Here, Mr. Clay was active in supplying every information desired by visitors upon bee-keeping topics, whilst in the bee-tent exhibitions of driving and general management were given at intervals, under the direction of the Rev. F. Sclater, the county secretary. Such depôts as that established at Great Kimble will, we feel sure, be of the greatest convenience to the members of the Association, and we shall hope soon to hear of others being established.

The subjoined is a list of prize awards:—

Class I. Sections.—1, Mr. E. Ridge (Thornborough); 2, Mr. L. Harris (Bradenham); 3, Mr. G. Lacey (Naphill); Highly Commended, Mr. F. Freeman (Wendover); Mr. J. K. Filbee (Naphill). II. Extracted.—1, Mr. F. Freeman (Wendover); 2, Mr. E. Ridge (Thornborough); 3, J. K. Filbee. III. Non-sectional.—1, Mr. F. Freeman (Wendover); 2, Mr. E. Harman (Wooburn). IV. Display of Comb Honey.—Mr. J. K. Filbee (Naphill). V. Local (sections).—1, Mr. G. Lacey (Naphill); 2, Mr. P. Brisker (Ellesborough); 3, Mr. J. K. Filbee (Naphill). VI. Local (extracted).—1, Mr. J. K. Filbee (Naphill); 2, Mr. S. Mitchell (Wooburn); 3, Mr. P. Brisker (Ellesborough).

GLAMORGANSHIRE GENERAL AGRICULTURAL SOCIETY.

The annual show of this Society was held at Neath on August 5th and 6th. The weather was beautifully fine on the first day, but thunder-showers occurred during the afternoon of the second day. The local Committee, for the first time in the annals of the show, offered prizes for appliances and honey, but no entries were made for the former. This caused considerable disappointment, as many bee-keepers came to the show intending to buy extractors, &c. The honey, which was staged in the same building as dairy produce, was of a wonderfully even quality, and differed very slightly in colour.

Mr. Blow stated that the run honey is the best he has ever seen at a first show of this kind. The sections which carried off the prizes were evenly built and of good colour, but this branch of honey culture has received less attention in the district owing to the difficulty of selling the sections. A large amount of the extracted honey was sold at from 1*s.* 2*d.* to 1*s.* 6*d.* per lb. Mr. Blow drove bees and lectured on bee-keeping in the bee tent to large audiences each day. There were thirteen entries for run honey (prizes, 1*l.*, 15*s.*, and 10*s.*), and nine for sections (prizes, 1*l.*, 15*s.*, and 10*s.*), which result is encouragiug, as this year is the first in which the Society has recognised bee-culture. The following is a list of awards:—Best 12 1-lb. or 2-lb. sections—First prize, Mrs. W. S. Powell, of Eglwysnunyd; second prize, William Williams, of Margam, and Edwin Evans, of Margam (equal); third prize, J. Muir, of Margam. Best 12 lbs. extracted honey in 1 lb. or 2 lb. jars—First prize, Rev. Z. P. Williamson, of Margam, and Edward J. Gibbins, of Neath (equal); second prize, William Pullin, of Margam, and William Owen, of Neath Abbey (equal); third prize, William Jones, jun., of Neath.

WORCESTERSHIRE BEE-KEEPERS' ASSOCIATION.

The Third Annual Show of this Association was held in conjunction with the meeting of the Worcester City and County Horticultural Society in the grounds of Walter Holland, Esq., at Rose Hill, Worcester, on August 20th and 21st last.

In the honey classes there were three entries for the medals and certificate given by the B.B.K.A. The silver medal was awarded to Mr. E. T. Footman, of Martley, for a very good exhibit of sections, mostly 1 lb., and weighing altogether 170 lbs. The bronze medal was taken by Mr. C. Brown, of Bewdley, the expert of the Worcester B.K.A., the competitor who would have taken this prize having failed to comply with the regulation requiring his honey to be protected from the bees, thus causing him to be disqualified, although the exhibit, amounting to sections weighing 150 lbs., was in point of excellence almost as good as that which gained the silver medal. The certificate of the B.B.K.A. was not awarded. The chief feature of the exhibition was the excellent exhibits of honey, the competition in several of the classes being exceedingly close, although, as usual, the entries in the cottagers' classes were very few.

In the hive department there was a good show, Messrs. Abbott Brothers taking, as usual, a large majority of the prizes in this class, and showing an excellent collection of bee-keeping appliances.

It is a matter of regret that there were only two entries in the driving competition offered by the Honorary Secretary, as under the regulations it could not take place unless three competitors entered. We advise all exhibitors to be more careful in future in complying with the rules and regulations, as several exhibits in both hive and honey classes were disqualified for failure in this respect.

The Bee-tent was well filled by most attentive audiences. Mr. A. H. Martin, in his introductory remarks, referred in feeling terms to the loss the Association and the bee-keeping community generally had sustained in the death of the Rev. H. R. Peel, who for so many years was intimately connected with the county of Worcester, and he especially bore testimony to the valuable advice and help he himself had received from Mr. Peel when the Association was started three years previously. Bee-driving and lectures were given by Dr. George Walker (who especially attended from the B.B.K.A. as examiner, and who acted as judge for the show, assisted by Mr. James Partridge, of Alvechurch), by Mr. A. H. Martin, the Hon. Sec., and by Mr. C. Brown, the expert of the Association.

There were nineteen classes, and over 20*l.* was given in prizes, for which there were in all eighty entries. Altogether the show was a great success, and a marked improvement upon that of last year.

Four candidates presented themselves for examination for certificates as third-class experts. Messrs. E. T. Footman, of Martley, and W. F. Paddison, of Malvern, were successful, having passed very creditable examinations, the bee-driving and manipulations with a bar-frame hive being especially good. We append the awards:—

Bees.—Class 1. Best specimen of bees, to be exhibited in an observatory hive. 1, Mr. C. Brown, Bewdley; 2, Mr. A. W. Rollins, Stourbridge.

Honey.—Class 2. Best exhibition of honey in sections. 1, Mr. E. T. Footman, Martley, Worcester; silver medal of B.B.K.A. 2, Mr. C. Brown, Bewdley, bronze medal of B.B.K.A. 3, not given. Class 3. Best exhibition of 24 one-lb. or 12 two-lb. sections of comb honey. 1, Mr. William Woodley, Newbury; 2, Mr. F. Martin, Hanbury, Droitwich; 3, Miss Nicholls, Abbotts Salford, Evesham. Highly Commended: Mr. W. F. Paddison, Malvern. Class 4. Best 12 one-lb. or 6 two-lb. sections of comb honey. 1, Mr. C. H. Haynes, Hanley Castle, Worcester; 2, Mr. A. W. Rollins, Stourbridge. Class 5. Best super of honey. 1, Mr. A. W. Rollins, Stourbridge; 2, Mr. A. D. Woodley, Reading, Class 6. Best exhibition of run or extracted honey. 1, Mr. A. W. Rollins, Stourbridge; 2, Mr. A. D. Woodley, Reading; 3, Lady G. Vernon, Hanbury Hall, Droitwich. Class 7. Best 12 one-lb. glass jars of extracted honey. 1, Mr. J. Johnson, Wychbold, Droitwich; 2, Mr. A. D. Woodley, Reading.

Wax.—(Given by Mr. C. H. Haynes.)—Class 8. Best exhibit of bees-wax. 1, Mr. William Woodley, Newbury; 2, Messrs. Abbott, Southall.

Hives.—Class 9. Best complete and most practical hive on the moveable comb principle. Price not to exceed 30*s.* 1, Mr. H. Meadham, Huntington, Hereford; 2, Mr. A. W. Rollins, Stourbridge. Class 10. Ditto, price not to exceed 10*s.* 1, Messrs. Abbott Brothers; 2, Mr. J. R. W. Hole, Tarrington, Ledbury. Class 11. Best straw hive. 1, Messrs. Abbott Brothers; 2, not awarded. Class 12. Best honey extractor. 1, Messrs. Abbott Brothers; 2, Mr. A. W. Rollins, Stourbridge. Class 13. Best and largest collection of hives and bee furniture. 1, Messrs. Abbott Brothers; 2, not awarded.

Cottagers' Class.—Class 14. Best 24 one-lb. or 12 two-lb. sections. 1, H. O. Huntley, Pitmaston, Worcester; 2 and 3, not awarded. Class 15. Best 12 one-lb. or 6 two-lb. sections. 1, Mr. J. Mansell, Harvington, Evesham; 2 and 3, not awarded. Class 16. Best exhibition of honey in the comb in any form. 1, no exhibits of sufficient merit; 2, Mr. Mark Wilkes, Trotshill, Worcester; 3, Mr. J. Neale, Crab Orchard, Worcester. Class 17. Best exhibition of run or extracted honey. 1, W. Willis, Egtborne, Hanbury, Droitwich; 2, J. Cartwright, Gallow Green, Droitwich; 3, H. O. Huntley, Worcester. Class 18. (Given by Mr. C. Brown,

expert of the Worcestershire Bee-keepers' Association.) Best bar-frame hive made by a cottager, a member of the Worcestershire Bee-keepers' Association, who is not, nor has been, a carpenter by trade. 1, S. Brown, Doverdale, Droitwich, a honey extractor: 2, J. A. Brighton, Perrylields, Bromsgrove, a crate of 21 one-lb. sections fitted with guide combs.

Driving Competition.—Only two entries. No award.

The arrangements of the tables were most excellently carried out by Mr. C. Brown, under the direction of the Hon. Sec. We are glad to be able to announce that a depôt for the sale of honey belonging to members of the Association has been opened by Mr. George Gabb, 47 High Street, Worcester, who will be happy to give particulars on application.

HUNTS BEE-KEEPERS' ASSOCIATION.

The Annual Show was this year held in connexion with the St. Neot's Horticultural Show on Bank Holiday, August 3. Mr. Edey kindly arranged sites, and superintended the erection of the bee and exhibition tents. The latter was in a good position, and capacious, showing off the various exhibits to the fullest advantage. The show was the most successful yet held, and considering the smallness of the county and the little interest taken in bee-keeping generally, must be considered creditable to the Association. The exhibits were more in number than hitherto, and the competition was fairly keen. The principal prizes, including the silver medal, were carried off by Mr. J. H. Howard, of Holme.

The prizes, awarded by R. R. Godfrey, Esq., of Grantham, were as follows:—

Class 1. Best specimen of foreign bees, exhibited with their queen in an observatory hive—1, J. H. Howard, Holme; 2, G. Reynolds, St. Neot's. Class 2. Best specimen of English bees, ditto—1, G. Reynolds; 2, J. Addington, Chawson; commended, J. H. Howard. Class 3. Best exhibit of comb-honey, not sectional—1, A. Childs, Alconbury; 2, J. Linton, Buckden Wood; commended, A. Childs. Class 4. Best twenty-four 1-lb. sections of comb-honey—1, B. B. K. A. silver medal, J. H. Howard; 2, J. H. Howard; 3, J. Linton. Class 5. Best twelve 2-lb. sections of comb-honey—1, J. H. Howard; 2, J. H. Howard; commended, Rev. C. C. James. Class 6. 1, B. B. K. A. bronze medal, Mrs. Allpress, Broughton; 2, J. H. Howard; 3, J. H. Howard. Class 7. Best sample of bees'-wax, not less than 3 lbs.—1, Edey & Son, St. Neot's; 2, G. Reynolds; 3, Mrs. Allpress. Class 8. Cottagers' best twelve 1-lb. sections of comb-honey—1, J. H. Howard, jun., Holme; 2, F. Green, Holme; 3, B. Bull, Brampton. Class 9. Best twelve 1-lb. bottles of run-honey—1, J. H. Howard, jun.; 2, B. Bull; 3, F. Green.

The bee-tent, in charge of Mr. Baldwin, of Bromley, Kent, expert-in-chief of the B. B. K. A., was only fairly patronised, but his remarkably lucid and practical addresses were listened to with great attention. Among the visitors was the President, the Earl of Sandwich, who took great interest in the proceedings. The weather was remarkably fine, and the number of visitors to the Horticultural Show unusually large; but, unfortunately, although the exhibition tent was well patronised, the bee-tent failed to draw any great number. As a means of members disposing of their honey, the annual shows are almost useless, and it must shortly be considered how the Association may be of most use to its members. Bee-tents help to create an interest in the subject, and much advice and practical hints are obtained by those who visit them: but the work must, to be successful, be carried on by the Association expert at the homes of the members. In a few words, the two great objects of the Association should be to show the members how to get the honey, and having got it, how and where to sell it. It is almost useless simply referring them to the Honey Companies and other depôts; they must have real assistance in its disposal. This is particularly necessary if the cottager and agricultural labourer are to be encouraged to keep bees on the modern system.—C. N. White, *Hon. Sec. Hunts B. K. A.*

SURREY BEE-KEEPERS' ASSOCIATION.

The sixth annual show of bees and honey was held at Sutton on the 12th ult., in connexion with the Sutton and Cheam Horticultural Society's show, in the picturesque grounds of Lower Cheam House, by the kind permission of H. L. Antrobus, Esq., and was the most successful, as well as by far the largest and best bee exhibition ever held in Surrey, and cannot fail to give an impetus to bee-culture in the locality, where there are already many advanced bee-keepers, who staged such a large and fine assortment of splendid honey and bees'-wax that the spacious marquee (80 feet long) was filled from end to end with more than 3800 lbs. of honey in comb and glass bottles, besides two other large tents devoted entirely for the large collection of bee-hives and appliances exhibited by Messrs. Abbott, Messrs. Neighbour, and Messrs. Overton, including several fine observatory hives filled with bees of different breeds, which were much admired. A large rotary honey extractor also attracted much curiosity, from its being designed by a local gentleman and being capable of extracting eight frames at once.

The Bee-tent of the B. B. K. A., as well as that of the Surrey Association, were erected in the spacious grounds, and practical lectures on bee manipulation and modern bee-keeping were given during the afternoon by the expert, Mr. Jas. Abbott, and the hon. secretary, Captain Campbell, to large and intelligent audiences, while Mr. C. N. Abbott conducted examinations for third-class experts in the smaller tent, till the heavy downpour of rain set in in the evening and put a stop to further operations.

Much regret was felt that the driving competition could not be held on account of the heavy rain, but the display of excellent stocks of bees in bar-frame hives as well as the fine quality of the honey staged, indicated that bee-culture had already made great progress amongst the gentry and other residents in the rich district around, abounding as it does with flowers and market gardens, offering great advantages for bees.

The whole of the arrangements of this, the first bee show ever held at Sutton, were carried out by the zealous district secretary, Mr. Percy Waterer, assisted by the hon. secretary Captain Campbell, and by a most energetic local committee. The judges were Mr. J. M. Hooker, of Sevenoaks, and Mr. C. N. Abbott, of Southall; and there being more than *one hundred and fifty-three* entries their labours were excessive, but the results most gratifying to the Association. The attendance of the public was very good indeed, but the evening proving so stormy many were prevented from coming.

The silver medal of the B. B. K. A. was awarded to Mr. W. Hollands, of Croydon, and the bronze medal to Mr. Chater, the B. B. K. A. Certificate to Mr. F. Hewetson. The value of prizes exceeded 30*l.*, including 6*l.* given by kind local donors.

List of prizes annexed:—

1.—Best observatory hive, Messrs. Overton, 1; Abbott Bros., 2. 2.—Best stock of bees in a straw hive (cottage members), W. J. Nixon, 1. 3.—Best stock of bees in a straw hive (Surrey cottagers not members), T. Barber, 1; H. Lidon, 2. 4.—Best stock of bees in a straw hive (Surrey cottagers), W. J. Nixon, 1; J. Norket, 2. 5.—Best 6 lbs. section honey in comb (cottage member only), T. Chater, 1; G. Hossett, 2; W. H. Menear, 3. 6.—Best six sections or other supers (Surrey cottagers not members), E. May, 1; J. Hall, 2. 7.—Best 12 1-lb. or six

2-lb. section honey, W. Hollands, 1; F. Hewetson, 2; C. Cousins, 3. 8.—Best 6 lb. bottles extracted honey (cottage members), W. H. Menear, 1; T. Chater, 2; E. May, 3. 9.—Best and clearest run honey (cottagers not members), E. May, 1. 10.—Best 12 lbs. honey in jars, Mrs. S. Shirley, 1; C. Fruen, 2; W. Hollands, 3. 11.—Best exhibition of honey in any form from one apiary, H. Eden, 1; W. J. Seabrook, 2; W. Hollands and R. H. Coppin, 3. 12.—Best exhibition of bees'-wax from one apiary, W. J. Seabrook, 1; W. Hollands, 2; F. F. Woolaston, 3. 13*a*.—Best collection of hives. Abbott Bros., 1; Neighbour, 2; Overton, Bros., 3. 13*b*.—Best moveable comb hive, Abbott Bros., 1; Overton, Bros., 2; Woodley, 3. 13*c*.—Best moveable comb hive for wintering bees, W. Hollands, 1; Abbott, Bros., 2; A. W. Woodley, 3. 13*d*.—Best form of straw hive, Overton, Bros., 1. 14.—Best hive of bees (members), Miss Dowling, 1; W. J. Seabrook, 2; W. C. Ahern, 3. 15.—Best hive of bees (cottagers), W. J. Nixon, 1; John Fowler, 2. 16.—Best 6 lb. section (members), E. Newling, 1; G. Martin, 2. 17.—Best 6 lb. section (cottagers), E. May, 1; W. J. Nixon, 2. 18.—Bee-driving competition, not judged.

BEE SHOWS IN CORNWALL.

This season the Cornwall Bee-keepers' Association have held five shows of bees, honey, &c., in different parts of the county, and though no startling profits have been made the Association has avoided losses, and there is a fair prospect that the heavy debt which overhung the Association at the commencement of the year will be materially decreased. The first show was held at Penzance, in connexion with the Royal Cornwall Agricultural Association. This was the annual show of the Association, and the able services of Mr. T. B. Blow were engaged for the occasion.

The tent was next pitched at St. Austell. The exhibition of honey was, without exception, one of the best local shows ever held in the county. The majority of the exhibits were sent in really good form, but there was, as usual amongst cottagers at present, some which should never have been seen inside a show tent. In the classes free to the county the Rev. C. R. Sowell, of St. Goran, was awarded the first prize for the largest and best harvest of comb from one stock obtained by any system or combination of systems, and J. Roseveare took second. The Rev. C. R. Sowell also obtained the first prize for the best super of comb honey, Mr. Harrison, of Tregoney, being second. The first prize was an open crate of twenty-one pound-and-a-quarter sections from a swarm on June 1st, in an Abbott's Combination hive. During the afternoon illustrations of driving and manipulating in the Bee-tent were given by Mr. Gradidge, of Truro, and brief lectures on modern bee-keeping were given by Mr. Sowell, in the presence of the high sheriff and a large number of ladies and gentlemen.

The next place visited was Falmouth. Here the show of honey was not so large as one would expect in such a good honey-yielding district. The most perfect exhibit was a collection of 1-lb. sections sent by Mr. A. Bennett, Tregoney, but the weight was against him, and the first prize in the class went to Mr. W. Sharpe, Falmouth. The other prize winners in the honey classes were Messrs. J. Tonkin (Mawnan), W. Eddy (Falmouth), and J. Johnson (Falmouth). Only one skep of bees were sent in to compete for the prize hive. The lecturing and manipulation were conducted by the Hon. Sec., Mr. C. Kent.

From Falmouth the Bee-tent went to the other end of the county, Launceston, where an excellent exhibition was held. The Rev. C. R. Sowell delivered lectures, and Mr. G. Gradidge conducted the manipulations. A large quantity of honey in sections and boxes was shown and a first prize went to the Rev. J. A. Kempe for an enormous glass super weighing 54 lbs., as the harvest of one hive. Mr. Kempe also obtained a first prize for a dozen 2-lb. sections, as the best super in the building. Mr. Cardell, of Launceston, was also a large exhibitor of honey.

Five days later the tent was pitched at Redruth, in connexion with a horticultural, dog, and poultry exhibition. Here the exhibits of honey were very few. For comb honey the prizes were awarded to Mr. J. Opie, Helston, and Mr. A. Bennett, Tregoney. A special prize was given to Mr. T. Phillips, Constantine, for some splendid quality extracted honey. The exhibition was open two days. On the first day Mr. C. Kent lectured and manipulated, and on the second Mr. G. Gradidge was in charge of the tent, assisted by Mr. H. B. Neame, a member of the Committee.

SHROPSHIRE BEE-KEEPERS' ASSOCIATION.

The Annual Exhibition of this Association was held in the Quarry, Shrewsbury, in conjunction with the Horticultural Society's Fête and Flower Show, Aug. 19th and 20th. Practical lectures on bee management and manipulation were given in an adjacent tent, the secretary being the Rev. J. H. E. Charter, Severn Villa. This was most certainly the finest exhibition of honey ever seen in Shrewsbury, both as to quantity and quality, and in the chief classes the beautiful finish of the sections elicited the admiration of the judges, and gave them no little trouble in arriving at their decisions; they were obliged to look over some of the exhibits two or three times before their fiat could be given, so close was the competition. Beautiful and magnificent were some of the large piles of delicate honey-comb, and almost as attractive was the rich bottled nectar.

In Class 1 there were three exhibits, and the prize-takers were decidedly the best. Class 2 was rather a novelty, and was intended to show the difference in the formation of cells between the humble bee and honey bee. The prizes were offered by the Hon. Secretary, but there was only one exhibit. In Class 3 Lady Hill judiciously exhibited two forms of supers, namely, sections, and also neat small straw caps so suitable for cottagers to adopt who cannot yet manage the former. In Class 4, as in the last, most remarkably fine sections were staged, and the competition was very keen, especially for second place, consequently an extra was awarded. Mr. Preece's exhibits were truly superb, and so was the one shown by Mr. Bennett. Mrs. A. Withers was very highly commended for her exhibit weighing 103lbs., slightly wanting in flatness in some parts, but still very fine. In Class 5 there was a grand display of extracted honey, the winning exhibit being a splendid lot weighing 250lbs. A very nice and beautifully clear sample, though small in quantity, was shown by Miss E. Steedman, High Ercall, which met with well-deserved attention and was very nearly being 'placed.' In Class 6 Mr. J. Minor, Wem, showed a splendid lot weighing 119lbs., which 'spoke for itself.' In Class 9 Messrs. Abbott showed a neat method for fixing the foundation to the bars. In the next class Mr. Preece showed a very ingenious and cleverly-made hive, and the one exhibited by Mr. Wood was a fine piece of amateur work. In the next class Mr. J. Bradley showed a most creditable piece of work. The awards are appended:—

Bees.—Best exhibition of bees in an observatory hive—1, Messrs. Abbott, London; 2, Mr. T. Bennett, Shifnel. Nest of humble bees—2, Mr. E. Davies, Bayston Hill.

Honey.—Honey in comb from one apiary—1, Association's silver medal and 10s., Mr. W. G. Preece, jun., Shrewsbury, 248lbs., from five hives; 2, Lady Hill, 57lbs. Honey in comb from one hive (doubling allowed)—1, the Association's silver medal and 10s., Mr. W. G. Preece, jun.; 2, Mr. J. Minor, Wem; 3, Mr. T. Bennett,

Shifnal. A very close competition. Extracted or run honey, the produce of one apiary—1, Bronze medal and 10*s*., Mr. E. Wood, Wellington, 350 lbs.; 2, Dr. A. O. Sankey, Boreatton Hall; h. c. Miss E. Steedman, High Ercall. Best ditto from one stock (doubling allowed)—1, Bronze medal and 10*s*., Mr. J. Minor, Wem.

Hives and Apparatus.—Best and cheapest moveable comb-hive (in wood or straw complete)—1, Messrs. Abbott, Southall; 2, Mr. W. Meadham, Huntington. Collection of hives, and useful appliances—1, Messrs. Abbott; 2, Mr. T. W. Hole, Ledbury. Any new and useful invention—1, Messrs. Abbott. Frame-hive, the work of an amateur.—1, Mr. W. G. Preece, jun.; 2, Mr. W. Wood, Wellington; and Mr. Preece, v. h. c. Ditto the work of a cottager—1, Mr. J. Bradley, Yockleton. Best straw hive with super—No award.

Open to Cottagers only.—Honey in comb from one apiary (doubling allowed)—1, The Association's certificate and 15*s*., Mr. J. Bradley; 2, Mr. W. Bennett, Berrington. Honey in comb in any sort of super from one hive—1, the Association's certificate and 15*s*., Mr. A. Withers, Marchamley; 2, Mr. W. Sutton, Harmer Hill; 3, Mr. W. Bennett. Extracted honey from one apiary—1, Mr. R. Watson, Baschurch; 2, Mr. M. Sutton; 3, Mr. R. Payne.

In these classes the exhibits showed that the cottagers in some instances are not far behind-hand in working the approved methods. The judges were the Rev. H. J. Wilcox (Cockshutt Vicarage), and Captain Nicholas Robinson (Frankton Grange). The lecturer was Mr. T. W. Hole, the Hereford Apiary, Tarrington, Ledbury.

WILTS BEE-KEEPERS' ASSOCIATION.

The annual county show was held in connexion with the Wilts Horticultural Society in the Palace Grounds, Salisbury, on Aug. 20th, and proved to be in all respects the most satisfactory one yet held by the Association. The value of the prizes, number of entries, and amount taken at the door, being much larger than on previous occasions. The hon. sec., Rev. W. E. Burkitt, was ably assisted by a local sub-committee, and the Committee of the Wilts Horticultural Society did all in their power to make the bee show a success.

E. H. Bellairs, Esq., hon. sec. of the Hants and Isle of Wight B. K. A. was appointed judge and examiner for 3rd class experts' certificates. Rev. V. H. Moyle, hon. sec. of Berks B. K. A., and Rev. H. Everett, of Dorset B. K. A., were the two selected by W. B. K. A., but at the last moment their places had to be supplied by W. Pinckney, Esq., and W. S. Bambridge, Esq. The centre tables were entirely occupied with the honey classes, in some of which there was a keen competition. The quality of the honey was excellent. Messrs. Abbott's collection occupied the greater part of one side of the tent. Excellent hives were also exhibited by A. D. Woodley, Reading; G. Perrett, Rowde, near Devizes; R. Webb, Yarnbrook, near Trowbridge. 'The Self-opening Tin Box Company' made a good show of their most useful receptacles for honey, preserves, &c.

A well-stocked sale-counter was presided over by Mrs. Currey, Miss Burkitt, and Miss H. F. Burkitt.

From the commencement of the show till dusk lectures and bee-driving, &c., went on continuously in the bee-tent, which formed, as it were, a south transept to the large marquee. Very great interest was manifested in the manipulations, but the afternoon was too dull for driving to go on pleasantly, giving scarcely a fair chance to some of the candidates for certificates, five of whom (including one lady) presented themselves for their examination.

The judges, hon. sec., and other members of the committee were invited to an elegant luncheon by the committee of the Horticultural Society presided over by the Mayor.

The hon. sec. begs to draw attention to the great inconvenience often caused to exhibitors and extra labour on the part of the secretary and his assistants by late entries—some on the morning of the show—and the very general neglect of *stating space required on the entry forms*; this omission was the unavoidable cause of Messrs. Abbott's fine collection being unduly crowded.

The following are the awards:—

Bees, &c.—1.—Best stock of bees in observatory hive, 1, H. Gibbons, Hungerford, 15*s*.; 2, Abbott, Bros., 10*s*.

Hives, &c.—2.—Best observatory hive, 1, H. Gibbons, 15*s*.; no 2nd award. 3.—Best bar-frame hive, price not to exceed 1*l*. 11*s*. 6d., 1, Abbott, Bros., 7*s*. 6*d*.; 2, R. Webb, 5*s*. 4.—Best bar-frame hive, price not to exceed 15*s*., 1, R. Webb, 7*s*. 6*d*.; 2, Abbott, Bros., 5*s*. 5.—Best bar-frame hive, for cottagers' use, price 7*s*., 1, G. Perrett, 7*s*. 6*d*.; 2, Abbott, Bros., 5*s*. 6.—Best collection of bee-furniture, 1, Messrs. Abbott, 2*l*.; 2, W. E. Burkitt, 1*l*. 7.—Best arrangement for obtaining super honey from skeps, 1, W. E. Burkitt, 7*s*. 6*d*.; no 2nd award. 8.—New inventions, Tin Box Company and Messrs. Abbott.

Honey (Open to Members only).—9.—Best exhibition of super honey, 1, W. E. Burkitt. 10*s*.: 2, Rev. R. Williams, 7*s*. 6*d*.; Highly Commended, Rev. P. E. Miles. 10.—Best 12 lbs. in 1 or 2-lb. sections, and 12 lbs. in 1 or 2-lb. jars, 1, A. P. Hall, Silver Medal; 2, W. E. Burkitt, Bronze medal; A. J. Noyes and Rev. C. B. Oldfield Highly Commended. (Mr. Burkitt having taken Bronze Medal last year, it goes *now* to Mr. A. J. Noyes, of Pewsey, 3rd on judges' list). 11.—Best super of honey (not being sectional) not less than 10 lbs., 1, Rev. P. E. Miles, Certificate of B. B. K. A. and 5*s*.; 2, E. Day, ditto and 2*s*. 6d. 12.—Best 12 lbs. in 1-lb. or 2-lb. glass jars. 1, E. Day, 5*s*.; 2, Mrs. Curtis, 2*s*. 6*d*.; W. E. Burkitt Highly Commended; Rev. J. A. Lloyd Commended. 13.—Best *old* stock of bees, in skep, 1, Thomas Giles, bar-frame hive worth 10*s*. or cash; 2, Mrs. Selfe, a Buttermere skep crate worth 5*s*., or cash; 3, P. Miles, a smoker and bee-veil, given by hon. sec. 14.—Best bees'-wax, not less than 5 lbs., 1, E. Day, 5*s*.; 2, I. Beauchamp, 2*s*. 6*d*. 15.—Best collection of bee flowers, no competition.

Driving Competition.—Not completed for want of time.

Cottagers Only.—17.—Best 12 lbs. in 1-lb. or 2-lb. sections, 1, Thomas Giles, a bar-frame hive, complete, stocked with bees, given by W. Pinckney, Esq.: 2, G. Clark, 2*s*.: no 3rd award. 18.—For the best super of honey (not being sectional), not less than 10 lbs, 1, not awarded; 2, G. White, 5*s*. 19.—Best extracted honey, not less than 12 lbs., 1, G. Clark, 5*s*.: 2, G. Newport, 2*s*. 6*d*. 20.—Best flat-topped skep, 1, H. Huish, 5*s*.: 2, G. White, 2*s*. 6*d*. 21.—Best bees'-wax, not less than 3 lbs., Thomas Giles, 2*s*. 6*d*., and first Certificate of merit.

HERTS BEE-KEEPERS' ASSOCIATION.

The utility of County Associations has been spoken of with disparagement in the columns of the *Journal* recently, and that many Associations 'have a name to live, but are dead,' I do not for a moment deny, but undoubtedly bee-keeping has been made what it is in Herts by the vitality of its Association. Having occasion to visit the sleepy old town of Hertford on Tuesday last, August 18th, and being informed there was a quarterly Conference of Bee-keepers of the district, to be held in the Town Hall that evening, at seven o'clock, I thought I would give a look in upon them. The Town Hall forms part of a hideous block of buildings in the centre of the town. On the centre table were displayed several appliances, natural history specimens relating to bees, and enlarged drawings of various parts of the honey-bee. There was a goodly number of people seated round, including half-a-dozen ladies. Dr. Shelly, whose improved skep-cover was illustrated in your columns a few weeks

since, was voted to the chair. There were a couple of representatives of the local press present, to whom I am indebted for many of these particulars. The Chairman called on the district secretary, Mr. R. T. Andrews, who said, the small attendance (which by the way we did not think small) was to be attributed to many being busy with the harvest, not to declining interest in the Association.

The Chairman asked Mr. Sambels to tell them something of interest, who replied, he feared he knew of little of that character. He had heard that the present honey season throughout the country was superior to the last, but accounts varied, several of his friends living at a distance complained that it was not so good, and he found in this neighbourhood some had higher averages than last year, and some had lower.

Mr. Andrews: My bees have done better.

Mr. Sambels, continuing: Yes! your bees were in very good order very early last year, and had fallen back before the glut came. This year they were in order just at the proper time, so like many more you have learnt it is possible to be ready before the flowers. Honey had been gathered in the United Kingdom this year by hundreds of tons, not because honey was more abundant in the flowers than formerly, but because there were not bees to gather it. The increase in the amount gathered would bring down the price, but would increase the consumption, so like true Free-traders they must devise means to gather it as cheaply as possible, to make it pay. The British Honey Company were doing a trade that was increasing rapidly, the sum invested in vessels alone for transport of honey represented an enormous amount, and he hoped in course of time the Company would find means of disposing of all the honey produced in the kingdom. In travelling about he saw many people's bees in various parts, and what he invariably found was, that those who failed with, and consequently abused, the bar-frame hive, were those who neglected the small details of the system; he found hives without dummies, or one half the quilt thrown back, or the feeder removed, and the hole not covered and consequently a draught through the hive, sections placed on in the most careless fashion, bars sometimes left two inches apart at one end, and all sorts of irregularities. He need not tell his hearers the advantages of the bar-frame for profit and manipulation, but to such bee-keepers he always said, you had better far give them up, and keep to the straw skep. There was immense harm done also by over-manipulation. Do what was necessary and at the proper time, but don't amuse yourself nor your friends by taking out your bees merely to look at them.

Mr. Allen asked whether anyone would give him his experience of black honey?

A gentleman said that out of fifty-six sections from one hive he had fifteen or twenty of black honey. The remainder were as good as possible.

Mr. Andrews inquired whether there were any means by which bees poisoned themselves. And what was the reason for a maiden swarm, after two or three days, leaving the skep in which they had been placed and dividing into three clusters? He also spoke of the increasing interest which was taken in bee-keeping in his district. There were 140 bee-keepers on his list many of whom were not members of the Association. He believed there had been 300 swarms in his district this year, forty or fifty of which had been truant swarms, that is, had flown away, one, two, or even three miles. He should like to know how that could be accounted for? He also said a lady had given three swarms to cottagers in his district, and he hoped many would follow her example; there had been prizes given for honey at several shows, and there were three or four more about to be held in the neighbourhood, and he was pleased to see the cottagers had competed very favourably with those who had more means at their disposal to procure appliances. He showed a mason bee and nest taken in the neighbourhood, and a large piece of comb and twig cut out of a hedge, on which a swarm of bees had evidently built and afterwards forsaken. He also related several curious instances of bees swarming into out-of-the-way places in the town, one in a sewer ventilating pipe, but, probably on account of the smell, they soon evacuated it.

The Chairman exhibited Abbott's cases for packing sections, and also an ingenious contrivance for fixing foundation sheets in frames, his (Dr. Shelly's) own invention; it was very clever and showed he gave his thoughts to something besides pills and physic. He also exhibited a 'Pell Mell' fixed in a frame which was self-containing, which he said he had brought out *three weeks before he heard anything* of Dr. Wray's at the British Quarterly Conversazione, so here was another case of the same idea occurring to two minds about the same time. His appliances were beautiful specimens of workmanship.

Mr. Clark also exhibited a very simple, but ingenious method of fixing foundation in frames, which consisted of a stud fixed in a piece of board, the stud is pressed into the sawscarf in the frame, and being wider than it is thick, by twisting the frame around the slit is opened sufficient to put in the foundation, this was the most suitable for the pockets of the cottager, as the most unskilled could make one for themselves. This gentleman also passed round a sample of dark honey in the comb, which had a very agreeable smell, but a peculiar resinous flavour not disagreeable by any means.

Mr. Sambels was now asked to reply to the various questions. He said he had heard of a great deal of black honey this season, there were positively no late flowers this year, while on the contrary last year they were most luxuriant in August. He should not object to eating Mr. Clark's honey. Aphid honey was harmful to the bees, it gave them dysentery; and those who knew the flavour of good honey would not care to eat it, even if it did them no harm, which he should not care to risk, but there was a quantity of dark honey about which was not aphid honey, which was not suitable for exhibition, but still was edible. Bees sometimes got intoxicated with the pollen of some flowers, and they were known to die from some cause or other around their hives, possibly from poison, but he knew of nothing that they would gather that was poisonous to them. As to the maiden swarms, it undoubtedly contained at least three queens, which came out on the third day after hiving for fertilization, and a portion of the colony of bees had associated themselves with each queen. He believed we greatly erred in our modern ways of managing bees, nature stoutly resisted in-and-in breeding. We had been keeping the same bees in our apiaries year after year. He had spoken of it before, and he believed we should see the desirability of exchanging swarms with our friends who lived at least three or four miles away; if we did not, we must expect truant swarms to leave us, as they had been doing this year. He would urge on them the importance of keeping all their stocks strong, of using interchangeable hives, and of thoroughly disinfecting all hives at least once a-year.

The time had passed pleasantly, the interest had in no way flagged, there was a vote of thanks to the Chairman, when it leaked out he had come straight from seeing a patient to the meeting, and so omitted getting his dinner, and several present had come three and four miles to the meeting. Here was practical proof of the enthusiasm that has made the Herts Bee-keepers' Association what it is. It was Garibaldi I believe, who said, 'a nation lives in the heart of her citizens.' True it is an Association can only live by the individual interest of its members. The Hertford bee-keepers may well be proficient; I am personally indebted to them for providing a pleasant and profitable evening to—A WANDERER.

Correspondence.

NOTES OF THE SEASON.

As my dear bees have nearly finished their harvest, I jot down a few things that I have observed this season, and do not remember to have seen noticed before.

My hives look west, being protected from the east by a thick hedge, and from the south by a small plantation. In every super that I have taken off, the southernmost of the three rear sections has been the most backward of that row, and in every case also the three front sections have been considerably behind those at the back. I shall in future give my supers a window in front as well as behind, that I may see what is going on in the van as well as the rear.

I have not used queen excluder-zinc, nor do I intend to do so again. I had a few sections in the first crop bubbling up with brood. I stuck a pin into each grub, and put those sections back into the new supers. At the end of a week they were finished off equal to the others. Neither in the second nor third crop did I find any brood in the sections.

Of course my old stocks (three) have not swarmed. I never interfere with the queen-cells, &c., but whenever they tell me they want to swarm I give them more room downstairs. Four hives out of six (two being themselves swarms of this year) gave indications of intending to swarm the day after I had removed their full supers, substituting, as I always do immediately, a nice empty range of rooms upstairs. It could not have been from want of room. Has this phenomenon been often noticed? and what cause can be assigned?

On two or three evenings towards the end of June the alighting-boards were full of drones. On most other evenings they have seemed to me to be crowded principally by quite young bees, taking, I suppose, a short outing, as it were, before real work begins.

There have generally been also several very small flies buzzing about the board. Whenever one alighted, the nearest bee ran at him, but I could not see that he ever caught him; much less could I trace his fate when caught. It was amusing to contrast the furious charge of the Italianised demons with the more sober rush of my brown pets under these circumstances. In the early part of June the alighting-boards were the scene of many furious battles, a dozen or more bees surrounding one (I presume a stranger), and hustling him about. I could never observe that they actually hurt him, but the 'bullies' generally ended in the stranger and one assailant tumbling together off the board on to the ground, where they would spin round and round in circles for some seconds, each, I imagine, trying to sting the other. I usually separated them with a bit of straw or a stick, when both would fly away quite happy.

One hive (a swarm) contrary to my express stipulations, turns out to be of Ligurian descent. '*Assuetumque malo Ligurem*,' as Virgil has it, which I construe 'the Ligurian always in mischief.' Whether they are Quadroons or Octoroons I cannot say, but more spiteful fiends I never came across. By the way, why do bee-people talk of crosses as 'hybrids?' The offspring of a bee and a wasp, or a honey-bee and a humble-bee, would be a hybrid; that of a spaniel and setter is a cross. Hybrids are usually unfertile. I wish to goodness these were, for then I might hope to get rid of them. At present I see no chance of doing so without Tophet, and after my denunciations of that place to my villagers, it would ill become me to have recourse to it. I might try simple regicide, but how about her majesty's successor? Is it likely that a tribe of these yellow-banded barbarians would accept a simple Brown Bess? The fiends are not only brave and peppery, but also skilful in making war. They know all the weak places of my armour (which the other bees do not), and when foiled in the region of my ankles, can make themselves felt through flannel trousers, plus drawers. I cannot observe, nor have I ever been able to learn from any careful observer, that they make more honey than other bees, under the same treatment and with the same surroundings; and they certainly bother one much more by asking leave to swarm, or even taking French leave.

I doubt very much whether all the Bee Associations put together have done much good to the cottagers. He simply cannot afford a proper hive, or give the requisite time to its management. Wherever I have been during the past fifteen months, I have found most of the cottagers still keeping bees in the old way; with this difference, that whereas the twenty or thirty pounds of honey and comb they got from an average hive used to bring them from a shilling to eighteenpence a-pound, they cannot now get half that price, owing to the enormously increased production by persons able to invest a few pounds in their apiaries. The best way of helping them I find to be (1), lending them a super, to be paid for when the honey is sold; (2), driving their bees condemned to Tophet, and giving them hospitable shelter; (3), showing them their own bees busily at work in the following summer, and totting up the results. One old fellow of seventy-six 'was not going to change his ways at his time of life,' and therefore would not come to my lecture in April; he 'would back his bees against mine any day,' &c. &c. Nor would he accept my proffered super. I think he is now changing his mind. According to his wife, 'the bees make honey only from honey-dew, which is sent from heaven like the manna in the wilderness. All that they get from flowers goes simply to wax and bee-bread.'

By the way, is the production of wax voluntary or involuntary? In the wet summer of 1882, when but little comb was wanted, as there was nothing to store, I frequently observed scales of wax in large quantities about the alighting-board. This looks as if they could not help producing at least a certain portion.

Again, has anybody yet been able to observe anything like delegated authority in a hive? Shakespeare says, 'They have a king and *officers of sorts*;' though Solomon says, in the parallel case of the ant, that it has no 'guide, overseer, or ruler.' They evidently have their parliaments to decide about swarming, &c., and building their combs under adverse circumstances; and it is difficult to conceive that so many thousands of individuals can be led to act together in doubtful affairs without some sort of organization.—C. C. James, *Papworth, St. Agnes, St. Ives, Hunts, July* 30.

P.S. Nearly half the sections from my third crop (made during July) are disfigured by a few dark cells of bee-bread, not lying close together, but scattered about, from one to half-a-dozen or so in the face of a section. Can anybody tell me of any way of preventing this? In the supers of my first and second crops (made in June) I used wooden dividers. I omitted them in the third set, thinking to get a larger weight of honey. From a careful examination of the sections, it does not appear that they are generally heavier, though a few, somewhat misshapen, are so.

ARE BEES A NUISANCE?

In reply to your correspondent 'Theta's' letter on the query 'Are Bees a Nuisance?' as one who has kept them for nearly forty years I can hardly agree that I have found them so, and I trust my neighbours have not either. In reference to the legal aspect of the case, I have not the honour of belonging to the profession I imagine 'Theta' follows, but I would suggest to him whether it would not be somewhat difficult to prove the *ownership* of the bees supposed to be 'a nuisance;' and,

therefore, even admitting some might think they came under the legal definition of 'a nuisance,' I think the difficulty of proving the *ownership* may have the effect of removing the sting from your correspondent's letter, and that we may in future follow our delightful pursuit without let or hindrance.—Sevenoaks.

BEE-KEEPING TAUGHT IN AN ELEMENTARY SCHOOL.

I have very great pleasure in complying with your request, to give the benefit of my experience after having taught Apiculture in an elementary school and thereby earning a Government grant.

In the first place, of course, the permission of Her Majesty's Inspector must be obtained, and a scheme submitted to him for his approval. I may mention that I taught it as the class subject 'Elementary Science,' and not as a specific subject, as suggested by the Rev. A. Leaky. To reach the agricultural labourer bee-keeping would have to be taught in rural districts, and under the present code these are just the schools that from an insufficient staff-accommodation, &c., cannot possibly find time for specific subjects. They might reach two class subjects, the first of which *must* be English, the second might be apiculture for boys, and needlework for girls, in a mixed school.

When the Inspector has approved of the scheme, then comes the procuring the apparatus. This with me was no easy task. My school being in a very poor district there are no voluntary subscriptions, and it is in debt over 100*l.* to the Vicar. After his giving permission to teach the subject, which meant probable loss at the end of the year, I could not ask him to give me 5*l.* for diagrams, hives, smoker, veil, and in fact the whole paraphernalia of bee-keeping affairs, without which the subject would be dry and useless to children. I was not a bee-keeper myself at the time so that I could not lend them. I applied to the British Bee-keepers' Association for help, but was informed that they could do nothing. Not being willing to give it up without a further effort, I thought I would make a trial in another direction, and wrote to E. C. Walton, of Muskham Apiaries, who very kindly settled all difficulties at once, by saying he would give me all I wanted. Things then went on smoothly, although just before the examination I was sorely puzzled to know how the Inspector would be able to examine the boys if he knew nothing about the subject himself. When July came, and the day arrived, we had three Inspectors in the school on the first day, and the head one said he knew no more about bee-keeping than he did about hawking, the second knew nothing, and the third one, who however undertook the task, 'ditto.' I need hardly say that a great many questions asked were foreign to the subject, and although they knew their work well we only got one shilling per head on the average attendance, instead of two, which, this being a large school, amounted to a considerable sum. On the second day, the Inspector told the Vicar that had they done as well in apiculture as they had in the other subjects, a full grant would have been earned, and persuaded him to give it up. When, however, the report came, we found that had we earned the full amount we could not have had it, as the maximum sum allowed by Mr. Mundella to be earned on the average by each boy, had been exceeded, and a reduction made as it was. This was very comforting and we are teaching the subject again for next year. There are two ways which suggest themselves to me to get over the Inspector's inability to examine, namely, for the manager or master to forward a text-book to him a few days previous to the examination with the parts the children have studied marked, or for the British Bee-keepers' Association to appoint delegates in each district, to question before the Inspector, who would then have ample scope to form his judgment.

To get hold of the rising generation and teach them 'the more excellent way,' is, I am sure, the highroad towards attaining the objects of the Association, and in no other way could their energies be put forth to more advantage. I shall be glad at any future time to offer suggestions as to how I thought they could get the subject taken up by masters and teachers generally. I know another master near here who is about introducing the subject to his school.—Magister.

[We have had the above communication in type for some time, but have postponed its insertion till the subject had been more fully discussed. Mr. Jenyns' paper has given us the opportunity required.—Ed.]

BEE-KEEPING IN ITS EDUCATIONAL ASPECT.

I have read the discussion which followed the reading of the Rev. Mr. Jenyns' paper, and I have read the paper also, which I consider to be ably written when we consider the difficulties Mr. Jenyns had to face. The 'discussion' was so much cold water thrown on the idea of introducing bee-keeping into schools.

Now, Sir, I believe the honey bee is the *most* interesting insect we are acquainted with, and the more we study it the more we admire it, and I feel it is impossible for any human being to examine a bee, its labours, and their fruits, without feeling a new sense of awe and reverence for our Creator. No doubt there are other insects very interesting in their habits if we only knew them better, and I see no objection to the scholars in the higher standards reading books on entomology and be instructed on the important branches with a view to inspire them with a love for all animated nature, and then, probably, we should see less cruelty to harmless creatures; but to introduce bee-keeping in its *practical* form is another thing.

It must be the idea of an enthusiast, who thought that everybody were either bee-keepers or wanted to be so. Education is not to learn bee-keeping or any other profession, but to develop the intellectual powers of youth, and so prepare him or her for learning a profession.

But is bee-keeping a trade or profession? Is it not a fancy? If a trade, I argue that poultry-keeping, pig-keeping, and rabbit-keeping, are trades also; and why should bee-keeping be taught and not poultry-keeping? Poultry have their fanciers and, amongst them, enthusiasts; and their production per year is of far greater value than that of honey and wax, simply because the demand and consumption are greater. Besides, it would be most *unfair* to introduce any one branch of industry into a school without *all* could be represented alike, and I think the educational authorities displayed wisdom in refusing bee-keeping as a subject for schools.

It is to be hoped the suggestion will be allowed to fall into oblivion after the inhospitable treatment it has met with, and instead of employing our time in creating *new* bee-keepers, let us assist the *old* ones not only in producing honey but in selling it. I notice that honey is already coming down in price, and I am certain it is not because *every* bee-keeper has an enormous quantity for sale, for I have visited apiaries this year where it would require the contents of three hives to make twenty-five pounds of honey.

In one case I was told they had passed through as many as seven years without any honey at all. Surely there is room here for the philanthropic scientific bee-keeper to exercise his generous feelings without spending valuable time in trying to force into the nature of certain persons a hobby for bees against their will—and that would be the case since education is compulsory.—Bees' Friend.

REVERSIBLE FRAMES.

Last year, after reading the American Journals on the new idea of reversing combs in bar-frame hives, I experimented to some extent on the principle, and after serious thought invented a frame which I trusted would answer the purpose.

This season I was determined to give the new principle a fair trial. Accordingly, I constructed a new bar-frame hive containing ten frames (as illustrated in the *Journal* of February 1st). On the 1st of June I obtained my first swarm, and only a small one; these I put in the hive on four reversible frames. In four days they were nicely drawn out. I gave them an extra frame as required, and on the 12th of the month they had nine frames beautifully drawn out, and two pounds of honey stored with pollen and brood in four frames. On the 16th they had so far progressed that I thought it quite time to experiment; accordingly, I uncapped all the honey cells and reversed the frames, placing above a crate of twenty-eight sections. On the 20th I again examined, and found six sections filled with honey; the nine frames which were reversed contained not more than one pound, and this was stored in the upper portion of the frame, which before reversing had been the bottom, and unfinished. The greater part of the cells contained brood in various stages of formation, and the whole of the comb beautifully fixed to the frames all round. Such a decisive proof of the superiority of reversing gave me the greatest pleasure. I immediately set to work to construct other frames, and now, with one exception, work all my hives on the reversible principle.

But to return to my trial hive. On July 12th I took off twelve other filled sections with six unfinished ones, and on July 23rd, I sent this hive with others to the hills. On the 17th August, I took off sixteen capped sections, the remaining twelve were filled, but not quite finished. I hope at a later date to give you the total of honey obtained from this one hive. At present I confine myself to the statement that the process has been a decided success.

In conclusion, I beg to state that I am not a dealer in hives, nor apiarian appliances of any kind, simply being an amateur bee-keeper; still, any gentleman wishing to test the reversible principle for himself, I shall be most happy to forward him a complete reversible frame at a mere nominal charge. Any person having a slight knowledge of joinery can then make the frames for himself.—CHAS. G. MASON, *Lothian Bank, Dalkeith, N.B., 24th August*, 1885.

REVERSIBLE FRAMES.

Having found in practice our reversible frames to be a decided advantage, and being desirous to see their general adoption by bee-keepers, we beg to intimate that we have now withdrawn the legal protection which has hitherto been afforded to our invention.—MASON AND BUCHAN, *Dalkeith, August 20th*, 1885.

BEE-KEEPING IN LINCOLNSHIRE.

'J. E. L.' expresses his surprise in your last *Journal* at a swarm hanging three days in a tree. I have had for the last three weeks a small swarm hanging in a thorn hedge near my apiary, which has worked out four combs, the largest being eleven inches long and seven inches wide. When the heavy rains came I placed a sack loosely over the hedge to protect them from the wet, but still they are exposed to view; but are getting short of stores, which they protect well from neighbours and wasps.

In referring to the *British Bee Journal* for July 15th, 1884, you will see that I mention a skep having a crack in the floor-board one inch wide, also a piece split off it exposing two inches of the combs, caused by the pressure of the plum-tree, under which it is standing grating upon it. This hive swarmed early this season and also had a good cast, and is again selected by its owner to stand the winter, and is still covered by two pantiles and some old sacking.

In driving cottagers' condemned bees I have found a great many that have lost at least (in my estimation) ten pounds of honey per hive through using small skeps, or old ones with two or three rolls off the bottom. And also several with the combs broken down through the heat and neglect (the prevailing cause), in not placing something between the usual covering—a pancheon [?]—and the hive, causing the combs to melt at the top, thus ruining the colony.—R. THORPE, *Langrick Ville*.

BEE SHOWS.

Your correspondent, Edward Owen, has touched on a point that has often occurred to myself, as I dare say to many others connected with Bee shows and lectures. But there are many difficulties in the way, that make it undesirable to adopt the suggestion.

All experts know the annoyance arising from broken combs, wasted honey, and brood, caused by the carriage of skeps unsuitable for the purpose to the shows; and also how difficult it is to procure the stocks when required. How much more often this would happen with bar-frame hives, as they require special and careful packing to travel safely to and from the show. But there is a still stronger objection, our fight is at present against the 'Sulphur Pit,' which is still rampant and consuming; and it is only by showing the actual driving itself that any good can be done, as the ignorance and indifference of the old-time bee-keeper are still so great we must continue that branch of the work till the enemy is subdued. So at present the skep cannot disappear from the tent; and to introduce two stocks, one in a skep and the other in bar-frame at the same time, and proceed from driving the skep to opening and exhibiting the bar-frame, would, particularly at this time of the year, lead to the destruction of one or both stocks from robbing and fighting. The nuisance caused by robbers from neighbouring apiaries attacking the skeps while driving is going on is very great, and if we had the robbers on the spot it would be intensified.

The only way to meet the difficulty would be to have lectures at different times for elementary and advanced instruction; but my experience is that the very people we want to get at object to pay for entrance to the tent, and pay twice they would not.

With regard to the size and make of the skep used at Bangor, Mr. Owen must remember we have to get what we can, and be thankful. Last year when I attended the Bangor Show, one of the skeps supplied was flat-topped, and stood 18 inches high and about 15 inches across, it was more than *one* could carry. For many reasons it is better to get stocks from the neighbourhood of the show, it being almost the first remark one hears from the audience, 'Oh! them bees knows him, they be used to it;' or, 'Oh! thee be tràund to un.' Now if they are one's own bees, or bees that have been used at other shows, no amount of talking will convince the company to the contrary; but if your answer is 'These bees belong to your neighbour So-and-So, and I have never seen them till to-day,' that settles the matter at once and removes one more difficulty. Again, if one has to attend two or three shows in the week, no stocks would hold out long, and the constant moving about, twenty or thirty or more miles every few days, would be awkward and expensive.

Of course I do not know who the expert at the show mentioned was, but I think Mr. Owen must have very greatly misunderstood his meaning if he gathered from the lecture that he (the expert) considered that 'the skep for all practical purposes could not be superseded by the bar-frame hive.'

The only thing I can suggest is that Mr. Owen and his friends who want help, should strengthen the hands of the Hon. Sec. of the Carnarvonshire B. K. A., by joining the Association so that they may get an expert for the county to make a tour, and he will show them more in an hour, among their own bees, than many Bee Tent Lectures will tell them.—C. Brown, *Bewdley.*

BEE-KEEPING FOR THE CHURCH MISSIONARY SOCIETY.

[The following letter has been received by the Rev. W. S. Price, C.M.S. Association Secretary for Suffolk, and formerly Missionary in India and East Africa.]

You were perfectly correct in saying that a bee-hive at work for the C.M.S., in my possession, yielded a harvest of 100 pounds of honey, which was sold for 7*l.* 10*s.* Nor is this a very extraordinary event, for I have known of 174 lbs. being gathered from a single hive, and frequently 140 lbs.

It has often occurred to me that if friends of the Society only knew how to work, they might find bee-keeping for the C.M.S. a pleasurable pastime. This can be done by ladies or gentlemen, but not with the ordinary hive, that is, not in the old-fashioned way of keeping bees. Keeping them in the old-fashioned hive, those who have tried it find that the bees are master over the owner, but those who have adopted the new system can pretty nearly reverse the order and become their master. This is not done all at once, and, as servants are sometimes apt to quit with a short notice, so on the new principle, bees have been known to do the same, not even giving you warning 'that this day month' they mean to leave your service. But sometimes they are domesticated enough to do this, and then you can generally come to terms with them, by opening the hive, depriving them of their honey in the brood chamber, and by cutting out all queen-cells you may find. I need scarcely say that the more bees in the hive, the greater the quantity of honey, but if the bees swarm you cannot get so much honey.

The bees I first mentioned, and which you have been good enough to refer to at several meetings, did *not* swarm that year the largest harvest of honey was gathered. They were placed near six acres of white clover, and with a young queen that laid from two to three thousand eggs a-day, the colony was kept strong and the bees worked splendidly.

I may add, for the benefit of all those who may desire to start bee-keeping for the C.M.S., that in nearly every county in England there is a Bee-keepers' Association, which has been started to encourage bee-keeping upon the new principle, and any Secretary of these Associations will, I am sure, be pleased to give information as to the best way of starting bee-keeping. I may as well add, I manage my bees myself. When I first began, like most people, I was afraid to go near the hives, much more to touch them. There is a motto that I have found useful on many occasions, 'In quietness and confidence shall be your strength,' and this is specially so when handling bees.—W. Stewart Walford (late Secretary Suffolk County Association), *Ballinghoo Rectory, Wickham Market, June 23rd.—Church Missionary Gleaner.*

ERRATIC SWARMS.

Facts for 'J. E. L.':—

No. 1.—On the last day of June a fine swarm escaped from a bar-frame hive, and, after some minutes, rose far above the house and shrubberies, finally resting on the top stem of a tree. Here was a puzzle to secure the truants. A very long ladder was found, and then a second raised above and made firm on a branch. Bees still out of reach, a long-handled hay-fork was thrust through a straw skep, and raised just enough to in some measure shield the bees. All the apparatus made safe with cords and left till next day. The writer of this witnessed the careful and successful descent of the hive with the swarm beautifully settled, and quietly enjoying their new home.

No. 2.—On the 31st of May, 1882, bees were missed from the front of hive in a farmer's garden (where they had been hanging some days), search being of no avail, they were supposed to be flown away. On the 23rd of June the swarm was found in a thick hedge in a distant part of the garden. Large pieces of comb, with brood, caused some difficulty, but the busy little things were eventually placed in a hive, and remained quite satisfied with the change.—N. D.

THE REV. DR. WRAY'S MEL-PEL.

It has been objected to my invention: 1. That it is an old thing; 2. That it is a new thing in its application to sections; 3. That, as to frames, half of the pulls are against the dip of the comb.

To these I would, with your permission, beg through your *Journal* to offer the following remarks: 1. I am told that the principle of the Mel-pel has already been applied to the extractors; but have received no particulars of such application. Perhaps you, Sir, or some reader of the *Journal*, would kindly refer me to a description of such an extractor.*

Assuming this to be the case, it may be observed that the fact of a contrivance having formerly been in use, unknown to the new inventor, does not detract from its originality, nor impair the utility of the invention. That very useful article, the safety-pin, was in use amongst the ancient Romans; but I do not suppose the patentee was aware of the fact, any more than I was of the application to a honey-extractor of the principle of the toy wind-mill. 2. This second was virtually, if I am rightly informed, the objection made by the judges at the recent Southampton Show, at which the Mel-pel was exhibited, when they determined that such an extractor for sections was unwanted. From this opinion I must, with all due deference, entirely differ. For imperfect or unfinished sections Mel-pels 1 and 2 are already found very useful.

But I look further than this; honey in the comb is to many people injurious, because the wax is indigestible. The public are already beginning to prefer honey, pure and simple, to that in the comb; and the more sections are offered in the market the less they will fetch. But it is very important that the growth by cottagers, and by beginners, of sections in supers over their flat-topped skeps should be by all means encouraged; and (to this end), that they should be taught, as stated in *Modern Bee-keeping*, p. 75, that by extracting the honey, and restoring the combs to be refilled, they will 'increase the possible harvest even three or four-fold.' The common mistake, as to sections, is that the supers are too large, and therefore too cold for the bees to work in. What I advocate then is the adoption of supers for flat-topped skeps, of not more than eight sections—three is not too few—from which, during the season, the honey should be extracted as they are filled, and before sealing; so that none of the bees' labour is wasted on comb.

The advantage of this will be seen when it is generally known that it takes some 19 lbs. of honey to make 1 lb. of wax, which is not only useless as an article of food, but to many actually injurious. As therefore the production of sections increases, so will the demand for the Mel-pel, Nos. 1 and 2. 3. That half of the pulls in the Mel-pel for frames are contrary to the dip of the cells, is, in fact, an advantage for the class of bee-keepers most likely to use it, I mean beginners and amateurs of small experience; such as are just as likely to put the frame into any extractor the wrong as the right way. Now, with the Mel-pel, each alterate pull *must* be the

* *Journal of Horticulture*, April 8, 1869. Lee's List of Bee Appliances, 1869.—Ed.

right way; so that it is immaterial in which direction the frame is turned.

Let the experienced bee-master, therefore, who extracts from frames on a large scale, and the wealthy amateur, keep to the more expensive extractor. But I trust, that for sections, even these will find Nos. 1 and 2 useful, being (so far as I know), the only extractor for the purpose; and that for bee-keepers on a humble scale No. 3 may prove successful. My main object is the encouragement of bee culture, and I hope that the prices in the accompanying advertisement will further this end.—G. O. WRAY, *Bedford, August 25th*, 1885.

COTTAGERS AND COUNTY SHOWS.

As a member of the County Association here, I will, with your kind permission, say a few words as to what, in my humble opinion, is a great fault or oversight in connexion with our shows, and I have no doubt also with some others in other counties; but as regards the shows in this county, I can speak for myself that the general idea is that it is a mistake, and more than one cottager to my knowledge refuses to exhibit his honey on this account, and this is, viz., at all the shows which have been held in this county this year the cottagers have been confined to exhibiting one pound supers or sections, and not allowed to show two-pound sections at all, while in the open classes both one-pound and two-pound sections have been allowed. Now, sir, why should not the classes be the same for both? and this for more reasons than one; the first which strikes me being the saving alone in the cost of two-pound supers over that of one-pound when the quantity of honey they respectively hold is considered, and this of course is the first consideration with cottagers. A friend of mine, a cottager who has seven hives, all bar-frames, is only working one of them with one-pound sections, as he finds the two-pound so much more to his benefit to use; firstly, on the score of cheapness; and, secondly, because he cannot sell the one-pound so readily as the two-pound. I have just to hand a schedule of the show to be held at Romsey on the 9th, 10th, and 11th of September, and I see by it that not only are cottagers not allowed to show any two-pound sections, but are confined to one-pound, but also that the prizes are only one-half what they are in the open class.

With regard to another matter which has come under my own observation at different shows, I will quote an instance at the late show at Southampton on August 1st and 3rd, and this is: why are some people allowed to have their names on their exhibits? The man to whom at the show named the first prize for extracted honey was awarded, not only had his name, but his full address, written across the parchment on each of his bottles; and again, it was nearly three o'clock before the awards were put on the exhibits.

To speak of one more thing which wants alteration, this morning I received the schedule of the Romsey show, that is on the 10th Sept., and according to the advertisement in your *Journal*, entries have to be made by the 20th. From the 18th to the evening of the 19th is not much time to see what you are able to enter for. Putting aside the fact that if you are out from home for one day only, and that day the one on which the schedule arrives, the chances are that you are late, and unable to show at all. In my humble opinion these things are mistakes, and require alteration, and I only ask you to publish this to hear the opinions of others.—OBSERVER, *Lower Swanmore, Bishops Waltham, Hants.*

BEE-HOUSES.

I intend to establish an apiary on the skirts of a wood, about 1½ miles away; for which purpose, and to prevent molestation, I shall be obliged to have a bee-house. In the *B. B. J.*, Vol. IX., page 227, in the discussion on Mr. Raynor's paper on 'Bee Houses,' Mr. Cowan would certainly recommend Mr. Root's system, *i.e.*, having a sort of continuous trough running along each side of the house in which the frames were to be suspended. Mr. Root, p. 17, *A. B. C.*, seems to recommend a house for a distant apiary. My idea is to make a house (similar to the one to hold twenty hives, illustrated, p. 20, Root's *A. B. C.*), about 8 feet by 7 feet, with two shelves along each side, and three stocks on each shelf, eighteen in all. The house is to be covered with Willesden paper, with a door at the north end.

I shall be very thankful for the advice and experience of any brother apiarist.—ICARDUS, *Weardale.*

WINTERING BEES ON CANDY.

The *British Bee Journal* for August 1st, 1883 (p. 119), contained a letter by Mr. John Hewitt, of Sheffield, explaining his proposed system of wintering bees on candy alone, instead of honey or syrup. At the end of his letter he said he intended wintering most of his stocks in this manner, but I have failed to find in any subsequent number an account of how those stocks fared, and in what condition Mr. Hewitt found them in the spring.

As the time for preparing stocks to winter is rapidly drawing near, will Mr. Hewitt kindly inform the readers of this paper how his system answered, and whether he tried it again last winter and with what results? If successful, all bee-keepers must be thankful for so simple a method of wintering; but if found otherwise it is well we should know the worst.—EDWARD J. GIBBINS, *Neath.*

LIGURIANS.

The other day I was visited by a brother of the craft from the fertile lowlands of this county. In our discussion on the quality of Ligurians *v.* Blacks, he said that his experience formerly was that Ligurians could not compete with Blacks at all, until a friend told him to put them *aloft* on very high stands, or as Mr. Cowan did, in a loft. He did so, and the result was marvellous, instead of being beaten by the Blacks they left them a long way behind. This notion seems so contrary to my ideas (my hives stand on four bricks, or stones, as near to the ground as possible), that I should like to have the opinion and experience of any other brother in the craft.—ICARDUS, *Weardale.*

P.S.—Is anything more going to be done for an association for this county, Durham?

MELILOTUS LEUCANTHA.

I am not certain whether the valuable properties of *Melilotus leucantha* have been described in the *Journal*. Passing through a friend's garden the last week in July I saw a sight never to be forgotten. Only one plant of the above, nearly 7 ft. high, and as much through, was one mass of bees, working head over heels at it. As it is rather rare I asked my friend if he would save the seed and distribute it through the *Journal*. He gave consent on my undertaking the trouble.—E. J.

DRY SUGAR FEEDING.

Last autumn I had a stock of bees robbed of every ounce of honey; plenty of bees and ten frames of comb in hive. Being busy at my trade, and having a lot to do with other hives, twenty-five in number, honey to pack, &c., I simply lifted the dummy ⅜ of inch, shot 10 lbs. of sugar in vacant space, which they licked up well, afterwards put five more pounds in, and gently fed up in spring, which turned out my best stock this season.

I have this autumn placed small wedges, ⅜ of inch, under each end of top bar, cut a stout piece of wood to fit the inside of hive about one inch thick and three inches deep, so that a piece of glass or wood will rest on top, and filled in with the *best Demerara sugar*. Moisture they can now find plenty of. I feel sure any person with a number of hives, after reducing the number to about seven or eight frames, and after extracting as close as they dare do with safety, will be pleased at the result. there is no fear of wet, sticky floor-boards, there are no expensive appliances to buy. The bees do not take it so fast as syrup. I consider it will create autumn breeding better, being slower fed. How often a person puts off feeding with syrup through press of business, no time to boil sugar, &c. &c., till too late.

I am one that think if a poor man has a pleasure in his bees, he ought to make everything himself, except forming sections and extractor. I have just fed twenty-five stocks in half an hour, driving bees included. With syrup-boiling, bottling, tying with canvas, &c., it would take three parts of the day. If you feel inclined to insert this, I think there will be some to try my plan, as time is money.—ALFRED CLAYTON, *Welling, Kent.*

APICULTURAL EXPERIMENTS.

We learn from the *American Bee Journal* that an Experimental Agricultural Station has been established at Aurora, Ills., in connexion with the Entomological Division of the Department of Agriculture. Mr. Nelson W. McLain has been appointed to take charge of the station, and Prof. Riley has instructed him to pay particular attention to these subjects:

To secure the introduction and domestication of such races of bees as are reported to possess desirable traits and characteristics.

To test the claims of such races of bees as to excellence, and to prove by experiments their value to the apiculturists of the United States, and their adaptation to this climate and honey-producing flora.

To make experiments in the crossing and mingling of races, and, by proper application of the laws of breeding, endeavour to secure the type or types best adapted by habit and constitution to the uses of practical bee-keepers in the United States.

To make experiments in the methods of artificial fertilisation, also to test the various methods of preparing bees for winter.

To gather statistics concerning the bee-keeping industry in the United States.

To make experiments with and observations concerning varieties of honey-producing plants for bee-forage.

To study the true cause or causes of diseases yet imperfectly understood.

To obtain incontestable results by intelligent experiments upon scientific methods as to the capacity of bees, under exceptional circumstances, to injure fruit—*i.e.*, to set at rest the ever-discussed question of bees *versus* fruit.

[We should be pleased if similar experiments could be carried on in some of the Agricultural Colleges in this country; we might then look for some most interesting results.—ED.]

SHOWS AND BEE-TENT ENGAGEMENTS.

NOTTINGHAMSHIRE.—Sept. 2, Clarborough; 22, Radcliffe-on-Trent.

WARWICKSHIRE.—Sept. 2, 3, County Show, Leamington; 8, Bedworth.

SOMERSETSHIRE.—Sept. 9, Banwell, near Weston-super-mare.

HAMPSHIRE AND ISLE OF WIGHT.—Sept. 9, 10, 11, Romsey.

NORTH-EAST OF IRELAND.—Sept. 11, Belfast.

Echoes from the Hives.

Trenton, Dorking.—A swarm of ordinary black bees, obtained from the town of Dorking, hived on the 5th of June, have given me 43 lbs. of super honey, are strong, docile, and very industrious, having at present the frames well stocked for winter use and still working, although all supers have, in accordance with instructions in the last issue of the *B.B.J.*, been removed.—W. T. S.

Ottershaw, Chertsey, Surrey.—I took a virgin swarm on Monday, the 17th of August; it was hived in a skep the 4th of July. The amount of honey that I got out was 12½ lbs. The reason I took it was that I thought the robbers had commenced it. I think this rather good for the time: the average was 2 lbs. a week. If you will make use of this in your *Journal*, do so the best way you think proper.—FREDK. S. FLETCHER.

Bewdley, Worcestershire, August 17th.—This, on the whole, has been a good honey season. A large number of sections have been taken, but the variations in amounts taken from equally strong stocks within a few miles of one another have been great. From one place one hears the limes have given nothing this year; five miles away the best of the sections have been taken from the limes. Beans with me have been a failure, as just as the blossom came out, the blight caught them and spoiled the honey harvest from them. Really good, well-filled sections, up to show points, are scarce this year. Why, I cannot decide in my own mind. Can any one give the reason? The extract from H. J. J.'s letter from Australia has given me very much pleasure to read. The last time I saw him he looked anything but able to cut down a tree and take out the bees, and I am rejoiced to hear the change has done him so much good, and that one of our Worcestershire members is able and willing to carry instruction to the other side of the world, and so spread the good he has gained himself in payment for the good he received from their climate.—C. BROWN.

Herts, Somersham, August 25th.—Honey taking from stocks in straw skeps by the cottager and labouring classes has now commenced, and so also has a certain amount of growling, for I can call it by no other name, because of the difficulty of finding a market, and the miserable price offered when they do find one. Well, is it to be wondered at? the miserable price, I mean. I say no. I tell them it is due, in many cases, to their own laziness and neglect of advice rendered in the *Journal* and elsewhere. It is a very simple matter to understand that the earlier the honey is in the market the better the price, and the more attention the bees receive in the *autumn* as well as spring the sooner will the stocks be ready for supering. Then, if judiciously supered, *i.e.* with regard to time and size of super, the less the swarming and the greater will be the amount of honey stored. In the future I imagine only those who give the necessary amount of attention to their bees will make bee-keeping pay. Certainly, if it is to be made to pay by the poorer classes, their time of taking the honey and putting it into the market must be, at any rate in this district, not later than the end of June, when the supply of honey fit for market ceases.—C. N. WHITE, *Hon. Sec. Hunts B.K.A.*

Honey Cott, Weston, Leamington, Aug. 26.—Have been very busy of an evening of late driving bees in the neighbouring villages, and as a rule have found the hives well filled with honey. There is scarcely one that would care to change their skeps for bar-frame hives, even though they can see it would be to their advantage. In most cases they asked me to come again if all is well another year. The next thing to do is to get stocks at home in trim for winter.—JOHN WALTON.

South Cornwall, Aug. 26.—As my last echo reported, July, which was the only good month we have had, was

one in which the '*cœlestia dona*' actually poured in, so that hives got crammed with honey, to the exclusion of eggs, and in some cases grubs were plugged in with it. Then was shown the advantage of the bar-frame hive and the extractor. A cottager borrowed mine, and after getting 25 lbs. from the upper tier of a doubled hive one Saturday evening, realised 20 lbs. more from the same source the following Saturday. During the first week of this month we had heavy showers at intervals. These effectually put a stop to the produce from late clover, but for the last fortnight it is astonishing what has been gathered from blackberry, hard heads, and red bartsia, as is shown by the partial refilling of relieved combs, and even the capping again of several cells. To-day long-threatened rain has come, and we can hope for no extension of the harvest. All through this district returns are heavy. The same thing was indicated a few days ago by some hives which I inspected in the north of the county, and which were as full as they could hold.—C. R. S.

NOTICES TO CORRESPONDENTS & INQUIRERS.

R. E. C.—*Difficulty in Extracting.* From the failure to extract your honey we should suppose you have heather near you, the honey from which it is impossible to extract, except when just gathered; any other honey can be extracted with the 'Little Wonder.'

J. F. L.—*Suspected Foul Brood.*—Your description of cells being sealed over with brood, but quite empty, is rather misleading, and we should expect that a closer examination would show you the dried remains of the deceased grubs adhering to the cell walls or bottoms, as we know the disease to exist in your locality. Send us a few cells, properly protected from being smashed in post.

J. E. Moon.—*Driving Condemned Bees.*—Drive each lot into a separate skep, which put on the board for an hour (if you can spare the time), for the flying bees to join the cluster. You may unite at once by placing the skeps containing two lots mouth to mouth, and giving the under one a good bump on the ground, the whole of the bees will fall into it, and you can tie a piece of canvas over it and carry away. You may, if you prefer it, keep them separate until you get home and unite when hiving. Furnish your bar-frame hive with six frames of ready built comb: arrange the frames, dummies, quilts, &c., place a large board sloping up to the entrance, and throw the bees on to it. If you have kept them separate, throw them together on the board they will all run in peaceably without fighting; they need not be sprinkled. The afternoon is a good time to drive, and by all means hive in the evening. Do not meddle with bees after dusk unless you want to be stung.

E. S. R.—*Anticipating Foul Brood.*—Unless foul brood actually exists, we should not recommend the use of the Cheshire cure. If your brood is simply chilled, the bees will carry it out and no harm be done.

Weiss.—*Bee-keeping for Ladies.*—There are difficulties to be encountered in the mastery of every science, and bee-keeping is no exception to the rule. The stings from bees appear to be one of your difficulties. We may say, as a general rule, that the effect of stings diminishes in proportion to the number received. But those who are acquainted with the specialities of your constitution will be able to advise you as to the desirability of persistency in the study. Many ladies are engaged in bee-keeping who derive much pleasure and instruction (and some of them a considerable amount of profit) from the occupation, and we trust that you may prove an addition to that number.

H. Y. K.—*Foul Brood.*—You need not uncap the brood, nor need you, at this season, pour the medicated syrup into the cells. Reduce the number of combs to as few as can be well covered by the bees, and feed gently with syrup medicated with Mr. Cheshire's cure in an ordinary feeder. As the queen may be affected, if you have a spare young queen raised from an undoubtedly healthy stock, it would be as well to unite her and depose the existing one. We should not advise you to use infected combs for condemned bees.

Dr. Wallace.—1. *Empty Queen Cells.*—If the hive has not swarmed the bees have most likely superseded their old queen by a young one; the surplus have been destroyed. 2. *Thin Unsealed Honey.*—The nectar as brought in is generally very thin, and if extracted in that state will not keep. The bees evaporate the excess of water before sealing. 3. We are glad to hear of your energetic efforts to educate your poorer neighbours by the very excellent method of putting a bar-frame hive in your dispensary. It is one which is well worthy of adoption by medical gentlemen in all rural districts, whether in Ireland or Great Britain, and we trust many will take the hint. We are not surprised at the loss of bees in straw hives, no doubt imperfectly covered in your moist climate, and your efforts to introduce water-tight bar-frame hives are the more commendable. 4. *Price of Honey.*—6*d.* per lb. for honey strained from the combs of skeps is a very fair price. Good extracted honey is to be bought at that price or even less. 5. The desired particulars will probably be communicated in a future number.

Apis.—*Removing Bees from Roof of Church.*—You must remove either the slates or the lining-boards to get at them, quiet them with smoke, and cut out all the combs; separate the honey-comb, and tie the brood-combs into frames; put the hive containing them over the hole, and drive up the bees by smoke. When you have got them to cluster on the brood-combs, remove them to a distance. The details of the operations will vary according to the circumstances of the case; it is impossible to give full instructions without inspection of the spot.

M. E. M.—The flower forwarded has been so hopelessly broken up in transmission that we should feel obliged by your furnishing us with a fresher specimen, As it is, we are able to refer it to the genus *Mordia*, but will give full name on compliance with our request.

H. J. Hart.—1. *Driven Bees in October.*—There will be plenty of time between now and then to get your foundation drawn out and stored by your other stocks. To put driven bees on foundation in October, and expect them to draw it out and store the combs, will be likely only to lead to disappointment. The bees will be so worn out that in spring they will die by thousands. The food to give is syrup made by boiling 5 lbs. best crystal sugar in a quart of water. 2. *Observatory Hives.*—See reply to 'G. G.'

Beeswing.—1. *Unfinished Sections.*—As you have no extractor, you can only do one of two things—break up the combs and melt out the wax, or let your bees clear them out. It is useless attempting to keep them; the unsealed honey will surely go bad. If there is much heather honey coming in, you might get some completed by uniting two stocks, and removing so many frames as to crowd the bees on to the sections. But we should think it would be hardly worth your while. 2. *Hives which have not swarmed for two Years.*—As they were hanging out in July, they most likely raised queens, and probably superseded the old ones by young ones.

F. Riggall.—At the Longstock sale there was but little competition, and things went at a great sacrifice in consequence, the largest number of hives being sold by private contract after the sale.

W. T. S.—The bee forwarded is what is generally

termed a hybrid bee: it is a black bee with a considerable strain of Ligurian mixture. We can well conceive such bees to be of 'violent and vicious temper;' but why they should not have proved good honey-gatherers we are at a loss to conjecture. Whether they should be continued or not in your apiary ought to be determined by their antecedents.

S. TURNER.—*Wasps' Nest.*—Your enclosure contained a small wasp's nest. Wasps build their nests in most out-of-the-way places; and evidence of this is furnished by your discovery of one found attached to the key of an unused door.

ANON.—*Destruction of Wasps.*—A gill of turpentine poured into a nest of wasps, by day or by night, will kill the whole of them, and they may be dug up forthwith. Wasps may be prevented from robbing by offering them a counter-attraction in the shape of syrup in bottles. Dr. Butler (*Feminin Monarchie*) recommends cider or verjuice, in a short-necked vial or glass, 'covered with paper that hath a hoal in the middle: and so you shall catch many.'

G. G.—*Observatory Hives.*—Instructions how to make observatory hives will be found, among other places in previous volumes, in Vol. XI., pp. 210 and 261; in Vol. XII., p. 32.

M. L. B. A.—*Bacillus Gaytoni.*—The bees with black shiny bodies, which have been creating a disturbance and endeavouring to force an entrance into the hive of your Ligurians, are bees affected with the disease named by Mr. Cheshire *Bacillus Gaytoni.* They do not appear to be anywhere welcome. Thrust out of their own hives, they make strenuous exertions to enter those of others. Until enlightened by Mr. Cheshire's researches, they were considered wild bees, with robbing propensities.

R. WHITE.—*Heath.*—The three species of heath enclosed are—1st, *Erica cinerea;* 2nd, *Calluna vulgaris;* 3rd, *Dabeocia polifolia.* No. 2 is the best honey-producing species. No. 3, St. Dabeoc's heath, grows on boggy heaths, and uncommon. No. 1 is common on heaths and commons, and yields a fair amount of honey.

ANON.—1. *Uniting.*—If in frame-hives, one queen must be removed. If *both* colonies are driven bees, it *may* be left to the bees to destroy one queen, but in all cases we prefer to remove one queen, viz., the oldest or least prolific. 2. *Smoking Syrians.*—Generally speaking, Syrian bees resent smoke, although there are exceptions. It is best to handle them quietly without smoke, or at most a few whiffs may be blown over the frames on removing the quilts.

E. J. BROOK.—*Queen Encasement.*—There can be no doubt that the encasement of the young queen was caused by the entry of strange bees into the hive, although you might not notice them. On opening a hive the excitement and loud humming of the bees immediately attract others which may be passing or located in the vicinity. You acted rightly in smoking the hive and returning the queen. On a fine evening examine the colony to make sure that the queen is all right.

NADIR.—*Removing Nadirs.*—Since you omit to state whether the *crown-boards* of the *lower* Woodbury hives were removed or not, it is difficult to advise you. If they *were* removed—as we should recommend in future—the operation is simple, viz., after removing the crown-board of the *upper* hive, take out each frame separately, and brush off the bees from all sealed combs which contain no brood or eggs, keeping a watch for the queen. Set aside these sealed combs for extracting or other use, and reserve brood combs for returning to the colony. Then pursue the same method with the lower hive, having placed it *upon* the one already manipulated, and containing returned brood-combs and bees. You will thus obtain all the sealed and superior honey, and leave all the brood for the colony to hatch out. In all probability you will find the lower hives to contain drone-comb chiefly, and the upper ones the queens with their brood-nests. If the crown-boards of the lower hives were *not* removed, pass a long, thin knife, or a piece of wire between the two hives and proceed as advised in the former case. The frames of the upper hives will probably be found attached to the lower crown-board, or to the lower frames, in which case care will be required in detaching them, and the outsides of the frames, reserved for the future colony, should be cleared of all propolis and wax. The operation should be performed in the evening, when bees have ceased to fly. We shall be pleased to hear the result. Use a *little* smoke, while operating, to keep the bees quiet, but do not inject any smoke at the entrance to the hives. Quiet, gentle manipulation, and very little smoke, will ensure success. A little carbolic solution may be applied to the tops of the frames on removing the crown-boards. Operate on the hives where they stand, but close the entrance of the one left till last.

STING.—1. *Distance Guide.*—We prefer the division-board to range one inch from the centre of the top bar of the last frame. Some prefer three quarters of an inch only. 2. *Transferring.*—If the new hive will take your present frames, the operation is very simple, viz., to transfer bees, frames, and comb altogether; but if a larger or smaller frame is required, the bees must be brushed off the combs, and the latter cut out and fitted into the new frames. 3. *Earwigs.*—We never knew earwigs to do any harm to bees. They are creatures gifted with wings; and therefore the means adopted with those that crawl will not be effective with them. The best remedy against earwigs is to have close-fitting hives and to keep stocks strong.

TELEGRAPHIST.—*Bees near Plymouth.*—Much must depend upon situation. Success in doubling, always supposing stocks are strong, must, like any other system, depend on the supply of bee-forage. We should say that bees ought to do well on the outskirts of the town, away from the sea, such as North Road, Plymouth, or Stoke, Devonport, from which places we should imagine all sorts of field-crops, as well as gardens, are within easy working distance.

JOHN EASTLY.—We do not believe that bees can forage with advantage at a greater distance than three miles, though we have heard of their going twice that distance.

W. S.—*Books on Bee-keeping.*—The simplest and the best books for a beginner in bee-keeping are *Modern Bee-keeping* and Cowan's *Guide-book:* also the *Bee Journal,* especially that portion under the heading 'Useful Hints.' All the above are to be had from Mr. Huckle, Kings Langley, Herts.

Several other queries have reached us, but too late for replies this issue; they will be attended to.

The best Journal of its kind, edited and published by the renowned C. F. H. GRAVENHORST, Brunswick.

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THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

[No. 178. VOL. XIII.] SEPTEMBER 15, 1885. [PUBLISHED FORTNIGHTLY.]

Editorial, Notices, &c.

THE END OF THE SEASON: DISPOSAL OF HONEY.

The shortening days and the lengthening nights bear their evidence that the long-drawn-out season of 1885 may be said to be ended.

From the reports which have reached us, and the 'echoes' which have been wafted to us, from all parts of the United Kingdom, we are led to the conclusion that, though the honey harvest of the year 1884 was unprecedentedly large, the production of honey during the present year has not been much less in amount. This is the result not only of the continuous fine weather we have enjoyed, but also of the larger number of persons engaged in the culture of bees. The season has been one of encouragement to those who have made their first essay in bee-keeping this year; and there have been good reasons for sounds of rejoicing to be heard in well-established apiaries.

Several reports have reached us of the amount of honey gathered; but we should be glad to receive, and to publish, further accounts, more especially from cottagers. (See letter from 'A Platelayer,' p. 302). Last year we were favoured with numerous reports from this class, and these having been copied into other journals, the results of profitable bee-keeping were circulated far and wide. We should also be glad to learn whether any of the numerous carefully drawn up tabulated forms which were issued by the secretaries of Bee-keepers' Associations have been filled up by their members, and what have been the results.

The time, then, has now arrived for each bee-keeper to calculate the amount of honey produced, and to devise means for its disposal.

Many bee-keepers, especially those whose honey has been produced in favoured districts and therefore is of a superlative kind, and those who have been careful in bringing their honey before the public in a presentable form, have already been able to dispose of much of their stores; yet a majority of bee-keepers have a large quantity on hand, and they may find a difficulty in getting a market for it. The fine weather has in many localities produced a succession of crops,—sainfoin, fruit-blossoms, clover, limes, and now heather, and each in its season has yielded an abundant supply. The result is that almost every large bee-keeper, and those who purchase small quantities in the country, find themselves unable to store so large a quantity. Bee-keepers, following the example of the farmers with new hay, new wheat, &c., at once proceed to take steps to realise their produce, naturally desiring to get a return for their outlay. It follows as a consequence that the honey market is glutted—at least for a time.

When sales cannot immediately be effected, the hearts of bee-keepers are apt to be disquieted, and they take a gloomy view of things, erroneously concluding that there is no market for their produce. But bee-keepers must learn to watch and wait; a few months hence the market will rally, and then will a better state of things be brought to light. From our position we have reason to know that the sale of pure British honey is increasing considerably, and that a market will be found for it all the year round. We therefore desire to advise honey-producers not to send all their honey to market at present, but to take measures for preserving it either in earthen or tin vessels till such time as the demand arrives. No company or firm would be disposed to purchase or store sufficient for the business of a whole year in the space of a few weeks. Supposing that the capital and facilities for storage permitted the large honey-dealing firms to effect such an object, it could only be done at the expense of the producer, as the over-stocking of the market must necessarily result in low and unsatisfactory prices.

We therefore counsel bee-keepers to exercise patience; they have no cause to be dismayed, but rather the reverse. The outlook for business is good. There are more numerous outlets for honey than at any preceding time. British honey is asserting itself in flavour and in quality in all quarters. The scientific management of bees has been practised only a comparatively short time, and yet what rapid advances it has made. Bee-keeping was once a hobby; it is now a pursuit. The value of honey, both for food and medicine, is growing—it may be but slowly—upon the mind of the public; and the time is coming when honey will be classed as one of the necessaries of life, and not, as it has been, as one of its luxuries. We feel assured that for all the honey produced a market will eventually be found, and that fair, living, and satisfactory prices will be obtained.

USEFUL HINTS.

Preparations for Winter.—The time is close upon us when winter preparations must be no longer delayed. At the close of this month, and the early part of October, we like to see the last manipulations of our colonies completed. After many years' experience, we have always found that strong colonies, well provisioned, and warmly packed, by the end of September, have been in the best condition in the following spring. During a cold October hives cooled down, and bees injured by over-manipulation never recover the necessary amount of heat, rest, and quietude for passing successfully through the cold, dark, and dreary winter months. Enamel cloths should be removed, and the top-bars of the frames scraped, to clear away the propolis, before putting on the winter covering. Hives must be contracted to six, seven, or eight frames, according to the number of bees, by closing up the division-board on both sides. On closing up last autumn, many of our colonies were too crowded to allow of their wintering on less than ten, or, in two or three instances, twelve standard frames; but this is rather unusual. Winter passages, in the centre of the combs, we have always found conducive to safe wintering. For quilts, our own plan is to purchase, from the grocers, sugar-bags, for which we give 3*s.* per dozen. Each sack supplies six covers. Two of these are placed on a hive. Upon them is laid a square piece of thick felt, or carpet, and over all a flat straw cover, weighted. Then the roof. After this, our hives are in perfect repose—not even touched—until the following February or March. We cannot too strongly impress upon beginners the necessity for *perfect* repose. Care must be taken that stools, or stands of any kind, are sound and storm-proof; and the same must be said of roofs, in which there must be no leakage.

The cellar plan of wintering has not been tried, so far as we know, in this country, nor do we think there is any occasion for it, although largely practised, and highly recommended, by many prominent apiarists in Canada and the United States. For winter location we prefer a sheltered south aspect, where no ray of the winter's sun is lost, and where the bees are enticed forth for a cleansing flight on each warm, bright winter's day. When all fear of robbing is past, the entrances to all hives are opened to summer's width, and our frames all range from front to back. So thoroughly do we believe in free ventilation. Death from dysentery or cold rarely occurs in our apiary.

Wasps' Nests should be destroyed, at evening, when all inmates are at home, by pouring into them gas-tar, or a little spirit of turpentine, and placing turf over the entrances. Wasps may also be taken in large numbers in bottles partly filled with a mixture of sugar water and vinegar. Very few bees will enter.

Feeding must still be continued where necessary, but should end with the present month, all unnecessary commotion at this late season being injurious to the bees.

Spare Combs of sealed honey, if stored in a warm and dry atmosphere, will be found useful at spring, but, as a general rule, it is best to extract from them the honey, and if consisting of worker-cells, one or two of these placed in the centre of the brood-nest of each colony, will be of advantage. Comb-honey, if not carefully stored, granulates, and becomes useless as food for bees.

Uniting weak colonies to stronger ones may still be practised, as advised in our last, advantage being taken of a fine day. Where the bees to be united are driven from a skep, to be added to a colony possessed of a skep with combs down to the floor-board, a successful union may generally be made by shaking the driven bees into an 'eke' and placing the full skep over them. This should be done immediately after driving, as the honey-sacs of the new comers are then well filled, and a heartier welcome is accorded them. The bees must be confined until the union is completed, and smoked freely. This plan, however, entails as much trouble as driving both colonies—as advised in our last issue—and success is less certain.

Floor-Boards of all hives should be thoroughly scraped. One *spare* board enables an instantaneous change to be made, without disturbing the bees, if each hive be gently raised on wedges, at the back, and a little smoke blown in. The bees will then ascend the combs, and the board can be removed, cleaned, and given to the next hive, and so on to the end.

Vacant Spaces, caused by the removal of outside combs, should be filled up with cushions stuffed with cork-dust, saw-dust, or shavings. The additional warmth afforded by these means is considerable, and should not be neglected.

'Hill's device' of placing a frame-work between the quilts and frames, to allow a passage for the bees *over* the frames, is not desirable. Winter passages through the combs are amply sufficient to allow of free communication between the brood-nest and the outer combs.

The Quantity of Winter Stores required depends upon circumstances,—such as the number of bees, sufficiency of protection from cold, length and severity of winter, &c.—but, speaking generally, from twenty to twenty-five pounds of sealed honey will be sufficient to carry through any colony from October to the middle or end of February. The *weight* of hives is not a safe criterion, since combs full of pollen weigh almost as much as when filled with honey. Quantity of honey can only be decided by inspection, which is an easy matter with frame-hives. And with skeps there is no great difficulty when turned up, and the bees are driven aside by a little smoke. The age of combs, and the quantity of pollen and honey, can then be ascertained with ease.

Enamel cloths should be scraped clean from any small quantity of propolis adhering to them, and stored in a dry place for use another season.

In conclusion, we sum up our advice for safe wintering as follows:—Strong colonies; ample supply of sealed food; bees crowded on as many combs *only*, as they can well cover; close-fitting, porous quilts; clean floor-boards; sound weatherproof covers; firm storm-proof stands; and plenty of downward ventilation.

WEST OF ENGLAND HONEY DEPÔT.

We are pleased to be able to state that under this heading a depôt has been started at Freshford, Somerset, and will be worked by Mr. W. N. Griffin, late Hon. Sec. to the Devon and Exeter B. K. A.

This gentleman is too well known in the bee-keeping world to require any introduction from us. He has been a frequent contributor to the columns of this *Journal*, and, by personal service and by his interesting lectures, has done much to advance the cause of apiculture in the West of England. His experience in the various kinds and qualities of honey, as evinced by his lecture on 'Honey' delivered at a recent conversazione of the British B. K. A., will be of valuable service to him in his present enterprise. We feel sure he will do all in his power to assist bee-keepers and advance the industry, and we wish him every success in working the depôt.

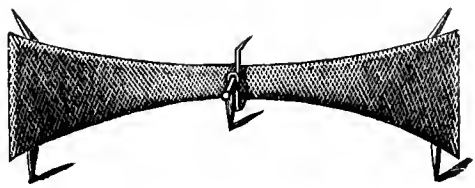
NOVELTIES IN BEE-KEEPING.

Abbott's New Method of Fixing Foundation.—This is a quick and certain method of fixing foundation. It consists in the top bar, instead of being split right through, having a wedge-shaped groove cut on the under side of it, rather more than half-way through. The foundation is inserted in this groove, and a long piece of wood of wedge section tightly forced in beside it. If considered necessary, it may be further secured by tacks. This method would prevent the harbouring of wax-moth, which so often find a lodgment in the groove.

Patent Honey Tins.—Any one who has noted the sad condition of sections on their arrival at the place to which they are consigned, however carefully they may have been packed by the sender, will be pleased to hail the introduction of any new method for the safe conveyance of honey. The Self-opening Tin Box Company supply their patent tins as receptacles of a great variety of articles, and these will be found well adapted for the package and storage of honey, and for its transmission by the Parcels Post. The tins

were exhibited at the Wilts Bee-keepers' Association Show at Salisbury, and were awarded a first-class certificate. Having made experiments with them, we can say that, if the lid is evenly placed and forcibly pressed down, the box is practically closed; it is opened by simply levering up the lid. The boxes will be found very useful to honey-producers for sending samples of their honey; and being infrangible, and presuming they are sold at a reasonable price, they will be used largely as substitutes for bottles.

Union for Securing Skeps while Driving.—This skep-union, the invention of Mr. J. Nicholson of Bowdon, Cheshire, is an ingenious contrivance for the assistance of bee-keepers when engaged in open driving. The junction of the two skeps is generally effected by means of driving-irons and a skewer. Mr. Nicholson's invention achieves the same purpose by the employment of one article



instead of three, and this, at a critical moment, would be a saving of time; it gives the bees a broader surface to traverse, and the union is secure and effective. The outside is made of zinc, painted; it is provided with several spikes for piercing the two skeps, and the inside is lined with perforated zinc so as to give the bees foothold when ascending Our engraving represents the inner side.

Dolan's Dummy Feeder.—There is much in this feeder worthy of commendation. It combines in one several articles which are useful in an apiary. Its chief purpose is to supply syrup to bees; this it does in a clean, ingenious manner, and the rapidity of feeding can be easily controlled. It may be used as a Simmins' dry-sugar feeder. In this case the tin containing the syrup is taken away, and the dummy is reversed, and the interior being filled with sugar, the bees obtain access to it through an opening at the top. If not used as a feeder it may be converted into a warm winter dummy by its being filled with chaff or cork-dust. There are several other features in this feeder which will suggest themselves to the intelligent bee-keeper.

ASSOCIATION FOR MONTGOMERYSHIRE.

Persons desirous of assisting in the formation of an Association for this county are requested to communicate with Mr. D. K. Thomas, Caer Sws, R.S.O., Montgomeryshire.

ASSOCIATION FOR DURHAM.

In the last number of *Bee Journal*, 'Icardus' asks whether anything was going to be done for an Association for Durham. We are pleased to state that there is now a prospect of such an Association being formed. All those bee-keepers in the county willing to help are requested to communicate with G. H. Proctor, Esq., Flass House, Durham.

BEE-KEEPING IN THE ISLE OF MAN.

Two years ago some correspondence took place in the *Journal* with regard to the capabilities of this quaint little island for bee-keeping, and it was confidently asserted that the meagre honey harvest was due not to lack of flowers, but of knowledge, and that if bees were kept on a scientific system instead of the old-fashioned skep system, the results would show that the island was very well adapted for producing a large honey harvest.

Having made a bee tour through the island, we can fully endorse all that Mr. James Moore, of Douglas, has written on the subject, for we have seldom seen a honey district which can surpass the 'dear little Isle of Man.' Though situated so far north, the climate is extremely mild, much more so than any other place in the same latitude, due to the beneficent influence of the Gulf Stream. There is a wonderful absence of extremes. The mean annual temperature is 50°, and the mean winter temperature is only slightly less than that of the south of France, and considerably higher than that of many places in the Mediterranean; and the fact that many plants and shrubs, which in some parts of England require great care and artificial heat, grow throughout winter in the open air, proves conclusively the extreme mildness of the climate.

Wonderfully fertile as it is, the great advantage to the bee-keeper lies in the fact that the honey harvest lasts not for a few weeks, but for several months in th year. Beginning with fruit-blossom—and all kinds of fruit-trees flourish in the island — large supplies of honey are produced by flowering trees (lime, sycamore, &c.), white clover, and wild flowers; while the heather gives the bees plenty of honey right into the autumn.

It is always unsafe to generalise on insufficient grounds. Every one knows the relative weight of facts and theories. The present year may be exceptional as regards the honey harvest, but even supposing this to be the case, the following facts speak for themselves.

We visited Mr. Cubbon's apiary in Douglas. He has between fifty and sixty hives, all of them bar-frame hives, with the exception of some dozen Pettigrews. His harvest was not nearly over, as the heather honey was only just coming in; but from several of his hives he had already (August 12) taken some seventy or eighty 1-lb. sections, together with a large quantity of extracted honey. As he was very busy, he was not able to give us the exact yield, but he has promised this later on in the year.

At Ramsay, in the north of the island, Mr. Kerr had taken 102 one-lb. sections from one hive, and 109 from another, which had thrown out a swarm weighing about 10 lbs.

Scientific bee-keeping in the island may be said to be in its infancy, as bar-frame hives are few and far between, and it is only within the last few years that bees have been kept in anything but skeps and old boxes; but as the child is the father of the man, this robust infancy augurs well for a still stronger manhood, and we can safely prophesy that in the future, with a greater knowledge of bee-keeping, the amount of honey produced in the island will be largely increased.

ASSOCIATIONS.

HEREFORD HONEY FAIR.

The second Annual Honey Fair and Show of Hives and Appliances, organised by the Herefordshire Bee-keepers' Association, took place at the Corn Exchange, Hereford, on Saturday, August 29th.

The hall was crowded all day, admission being free. About three tons of honey were staged for sale and about 1700 lbs. sold. Prices were considerably lower than last year; some sections (1 lb. size) being sold as low as sixpence each to clear out, the general price for good sections being tenpence. Extracted honey from sixpence (dark) in the bulk, to tenpence and one shilling in 1 lb. jars. The quality on the whole was not so good as last year; from some districts the colour was good, but from others much contaminated with honey-dew. There was, however, some splendid honey for competition, especially in the class for extracted, where the competition was keen (twenty-one entries for clear honey, nine entries for candied, or partially candied).

The show of hives was also a success. Messrs. Abbott sent a very complete collection, which secured first honours; and Mr. J. H. Howard also sent some well-made hives of good value for the money. Undoubtedly the cheapest hive was one exhibited by Mr. J. R. Hole in the class for hives not above 6*s.* 6*d.* It was made of unplaned material, two storeys in height (lower storey only furnished with frames), with roof and floor-board complete. The judges would have awarded it first prize, but as it did not fulfil one of the conditions (to be furnished with a quilt) it had to be passed over. The hive which took first prize in this class (made by a local maker) was nicely finished, made so that the hive bodies could be tiered up, the entrance being cut in the floor-board; and the body being square the frames could be placed across or lengthways. A hive of the same pattern took first prize in the amateur class, in fact bee-keepers in this district who keep a number of hives for extracting begin to find out that a hive which can readily be doubled is a necessity, and that hives of the usual 'show pattern' with legs are almost useless to them.

The judges were Colonel Pearson, Rev. J. J. Evans, also Rev. F. S. Stooke-Vaughan for honey, and Dr. Chapman for hives. The whole of the arrangements were carried out by the hon. secretary, Mr. Alfred Watkins.

The following is a schedule of the prizes:—Honey (open to members only). Class 1: Largest and best exhibit of honey, either in comb or extracted—1st (1400 lbs.), bronze medal and 1*l.* 10*s.*, Thomas Charles; 2nd (975 lbs.), 1*l.*, Dr. Chapman; 3rd (230 lbs.), 15*s.*, Rev. G. Herbert. Class 2: Best twelve 1-lb. jars of extracted honey—1st, 15*s.*, W. Revell; 2nd, 10*s.*, J. Vale; 3rd, 5*s.*, W. Tomkins. Class 3: Best twelve 1-lb. jars of extracted honey (candied)—1st, 15*s.*, M. Meadham; 2nd, 10*s.*, J. Vale; 3rd, 5*s.*, W. Tomkins. Class 4: Best twelve 1-lb. or six 2-lb. sections of comb honey—1st, silver medal, and 15*s.*, Rev. G. Herbert; 2nd, 10*s.*, Thomas Powell; 3rd, 5*s.*, Dr. Chapman. Class 5: Best single super of honey, not being a bar, bar-frame, or sectional super—1st, 10*s.*, Miss Parry; 2nd, 5*s.*, J. Vale; extra, J. Dunkerton. Class 6: Best exhibit of honey in any shape shown by a *bonâ-fide* cottager—1st (420 lbs.), hive, value 10*s.* 6*d.*, certificate, and 10*s.*, W. Tomkins; 2nd, hive and 5*s.*, T. Lewis; 3rd, hive, W. Smith; 4th, hive, A. J. Adams; 5th, hive, not given. Hives (open to all-comers except Class 9)—Class 7: Best frame-hive, with supers, cost not to exceed 15*s.*—1st, 15*s.*, J. Howard, Peterborough; 2nd, 10*s.*, Abbott Bros., Southall; 3rd, 5*s.*, M. Meadham, Hereford. Class 8: Best frame-hive, without supers, cost not to exceed 6*s.* 6*d.*—1st, 15*s.*, Rev. Powell, Hereford; 2nd, not awarded. Class 9: Best frame-hive, cost not to exceed 5*s.*—1st, 10*s.*, A. J. Adams, 2nd, 5*s.*

W. Smith. Class 10: Best flat-topped straw hive, with crate of sections and roof—1st, 10*s.*, J. H. Howard; 2nd, 7*s.* 6*d.*, not given; 3rd, 5*s.*, J. H. Howard. Class 11: Largest and best collection of hives and bee furniture—1st, 2*l.*, Abbott Brothers; 2nd, 1*l.* 5*s.*, J. R. Hole.

ABERDARE SHOW.

List of Awards.

I. Largest and best exhibit of super Honey.—1, W. Kettle, Brecon; 2, Mr. Richards, Talyllyn. II. Largest and best exhibit extracted honey.—1, Mr. Kettle. III. Twelve 1-lb. sections of comb honey.—1, Mr. W. Gay, Cardiff; 2, Mr. Breedon, Cardiff; equal 3, Mr. D. A. Thomas, Ovenden, Sevenoaks, and Mr. Thos. Jones, saddler, Llandilo. IV. Twelve 1-lb. bottled extracted honey.—1, Mrs. Price, St. David's Rectory, Brecon; 2, Mr. Richards, Talyllyn; equal 3, Mr. Kettle and Mr. Gay. V. Best sample of bees-wax.—1, Mr. Richards; equal 2, Mrs. Price and Mr. Gay. VI. Best kept hive of bees.—1, Miss Thomas, Sgubowen; 2, Mrs. Wilkinson, Abermont; 3rd, Mrs. Thomas, Brynawel.

About 500 pounds of honey were staged. Richards' exhibit in No. 1 was 100 sections, Mr. Kettle's was more. Mr. Blow acted as judge.

HAWARDEN FLOWER SHOW.

Bang! Bang!! goes the knocker—G. Spencer, Hawarden, to 'Amateur Expert,' 'Our Flower Show is on August 13th. I hope you will come with the Bee-tent.' Bang! Bang!! again—J. Huckle to 'Amateur Expert,' 'Hawarden Show is on August 13th. I do hope you will go and take the tent for us.'

Well now, like a true galley slave the mill is most fascinating to me, but considering a trip to Hawarden was a far lesser evil than to be 'wearied by their importunity,' I oiled the mill well and left it running, and went; and I am back again.

The Hawarden people know how to grow good vegetable, fruit, and flowers, and they know how to exhibit them; more than that, there are plenty to come and see. At 12 (noon) you might look around and guess about 250 would pass the gates; but fancy 1274 after 5 p.m. And how they enjoy themselves; music any amount, both long and loud, singing and dancing too, but no intoxication and no rough horseplay. But what is all this to bee-keepers? I am coming to that. The season has not been so good for bees as the two last; the skeps were lighter, and the bees had no unsealed stores, and consequently were prepared to fight or to rob. The exhibits of honey were few; a large Woodbury super that gained the first prize was a credit to the exhibitor; it was beautifully made of mahogany and glass, and extremely well filled. The bottled honey were beautiful samples, and the six 1-lb sections that gained the first prize were exhibited by a bee-keeper who knows what good sections should be. The Bee-tent was attended about as usual, the site was shifted, but that did not affect the numbers admitted; those who are interested will come, while those who are not prefer to dance and enjoy the holiday. Mr. Spencer was as courteous as need be, the only thing lacking is a good vigorous association; there is some talk of one for the three northern counties of Wales; Flint, certainly, is small, but, I believe, a very good association might be worked for that county alone. I fear the three would be too unwieldy to be worked as thoroughly as they should be.

I had the pleasure of examining several stocks of bees in the neighbourhood, they were evidently in good hands. None of the Gladstone family were at home to take any part in the show as they usually do, but it was a most successful show in every way.

The following day I went down into a neighbouring colliery; this is nothing to do with bee-keeping, but it added to the pleasure of—Amateur Expert.

BEE AND HONEY SHOW AT ODIHAM.

On the 25th August, a fine collection of honey was exhibited in connexion with the Autumn Show of the Odiham Horticultural Society. Prizes were given by the Hants and Isle of Wight Bee-keepers' Association, the first prize falling to the lot of Mr. W. Hunt, whose splendid exhibit of over two cwts. of honey was greatly admired; the second was taken by Miss Turner, and the third by Mr. Trinder, the head gardener to Sir H. St. John Mildmay. Lady Mildmay had also a very pretty case of sections, not for competition, and her ladyship kindly distributed the prizes. The cottagers also had a nice lot of honey staged, but it was mostly in small straw skeps used as supers, but when they can see honey as shown in the sections, no doubt they will ultimately see the advantage of using them instead of the little skeps.

MATLOCK BATH HORTICULTURAL SOCIETY.

The fourteenth annual exhibition of this Society was held in the Pavilion on Saturday Aug. 8th, and was a complete success, nearly five thousand people passing through the gates.

The Society gave prizes for honey and bees, and about half-a-ton of honey was staged by five exhibitors, all of which was of a splendid quality. This proves that the effort of the Society to encourage the keeping of bees on the modern principle is meeting with success. Three years since, when the tent of the B. K. A. was first brought into this district by them, the show of honey was so small and the quantity so poor that the expert, Mr. Baldwin, who acted as judge, said none of it was worthy of a prize. Since then, not only has the quantity of honey exhibited increased year by year, but the quality has also improved, that shown this year being as good a sample as will be met with at any show. A novel method to induce cottagers to become bee-keepers was introduced in the schedule in the shape of a bar-frame hive and stock of bees, given by Mr. Jno. Evans, a member, and Mr. A. Clark, the hon. sec. of the Society, for the best collection of vegetables exhibited by a cottager, a condition being attached to it that the winner must give a swarm for a prize at next year's show. There was a keen competition for this prize, which was won by George Richards, of Matlock Bank. The other prizes were taken by the following:—

Twelve 1-lb. sections, 1st, H. Richardson; 2nd, B. Glossop. Six 2-lb. sections, 1st, W. Walker; 2nd, A. Clark. Twelve 1-lb. bottles or jars of extracted honey, 1st, Hy. Woodiwiss; Hy. Richardson; 3rd, Mr. Hurd. Largest and best exhibit, 1st, W. Walker; 2nd, Hy. Richardson; 3rd, Mr. Hurd. Stock of bees in observatory hive, 1st, not awarded; 2nd, W. Walker. The secretary of the County Association was in attendance in charge of the expert, W. Harding, of Hasland; and lectures were delivered by the Rev. Mr. Shipton, of Brampton Vicarage, who also acted as judge of the honey, and Mr. W. Walker, of Highheath, West Cromford.

HONEY AND BEES AT THE BANBRIDGE CATTLE SHOW.

At the Banbridge (Co. Down) Cattle Show, held on the 5th of August, prizes were awarded as follows for honey and bees:—

Class 65—For best stock or specimen of Ligurian or black bees, to be exhibited with their queen, in an observatory hive—1, Samuel Hill, Solitude House, Banbridge.

Class 66—For best section of honey in either wood, glass, or straw, and not less than 5-lb. weight—1, Thomas Gillespie, Banbridge; 2, Samuel Hill, Solitude House, Banbridge.

Class 67—For best six 1-lb. sections—1 and 2, Samuel Hill, Solitude House, Banbridge.

Class 68—Best six glass jars of extracted honey, not less than 1-lb. each—1, Thomas Gillespie, Banbridge; 2, A. Potts, Cappy, Banbridge.

This was the first time for such, and the Committee have every reason to be satisfied at the number of entries and the quality and 'get-up' of the exhibits in the honey classes. The Rev. H. W. Lett, M.A., of Ardmore, acted as judge, and afterwards gave a lecture on the management of bar-frame hives, illustrated by an unusually fierce stock of bees, in the bee tent of the North East of Ireland Bee-Keepers' Association, which has for several years past been erected in the show yard. There was a good attendance, and many interesting facts were elicited between the lecturer and his audience.

Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

OBSERVATORY HIVES.

May I ask again a question which I put some time ago, viz. what facts or theories are still needing observation? It seems to me that if all owners of observatory hives were to bend their minds to the investigation of particular facts, a great deal might be discovered. It may interest your readers to know what a wasp does inside a hive. I watched one yesterday. He ran all round the outside every now and then wrestling with a bee, and apparently stinging; but the greater number of the bees took no notice. He did not appear to take any honey, but made his way out. Wasps should be attacked before entering the hive, and entrances should now be narrowed.—E. Liddell, *Frogmore, St. Albans, August 30th.*

[Anything that takes place inside a hive is of interest to bee-keepers, and it is only by careful observation and accurate description that we can arrive at a better knowledge of the habits of bees. Although a great deal is known about them, we are still a long way from a perfect knowledge of either their natural history or habits. Amongst other things opinions are divided with regard to the antennæ, some believing them to be organs of smell, others of hearing, and others again assert that they are only used as feelers. Much difference of opinion also exists in respect to the construction of wax-cells, and very little is known about fertile workers, some even denying that they exist at all. More knowledge with regard to swarming would also be useful. Then very little is known about the diseases bees are subject to. We know by practical experience that foul brood is most fatal, and although German scientists (from whom most of our scientific knowledge about bees has been derived) have shown it to be a bacterial disease, and have given us remedies with which to successfully treat it, they have not yet been able to tell us the true cause of the disease. There are also many other diseases of which absolutely nothing is known. A wide field is also open to those who can experiment in the crossing of the different races of bees, so as to secure one superior to any other, and more able to resist the variable climate of our country. Besides these there are many facts and theories worthy of study, and owners of observatory hives would have plenty of occupation if they devoted their time to the observation of any of these, and would, at the same time, be adding to our knowledge of the subject. In our last number, p. 290, we directed the attention of our readers to the experiments in apiculture which were being made in America, and expressed a desire that similar investigations might be prosecuted in this country. We shall always be pleased to insert in the *Bee Journal* reports of any observations likely to be of use to bee-keepers.—Ed.]

NOTES FROM A NOVICE.

I have had in my bee-keeping the usual experiences of a novice. Of course I got a bar-frame hive as soon as I saw one, and put into it late in the season a weakly swarm, which I allowed to perish in the following spring. Better luck in the summer. Got up four strong stocks by autumn and brought the bees right well through the winter; but two, alas! became queenless in the spring. Of the other two, one got foul brood, which was rampant in the neighbourhood, and from the other I took, on the 5th of May, fourteen splendid sections, fully sealed. And here I must remark that my ardour in making converts to the bar-frame system is considerably damped by the fact that several people about me took up the system, got bees and hives, then through ignorance or neglect allowed them to become so diseased that they have been the cause of much trouble. That we have not fared worse I am perhaps not wrong in attributing to the fact that we have had the finest summer ever known, which doubtless enabled our hives to resist sickness and disease, for I saw six hives done to death by foul brood in May last within half-a-mile radius of my garden. As all interchange of experience may tend to profit, I will inform your readers how I treated my sick bees. My suspicions as to disease were first aroused by seeing dead grubs in front of the hives on the ground, mostly drones, and I made an examination with the help of an experienced friend. The disease was there, but not in an advanced state, and no robbing had occurred, the hive being very strong in bees and full of honey; very little worker brood (only a short time before there had been plenty); a great deal of drone. This was about June 1st, and as honey was coming in fast, I determined to run no risks but transfer the bees to a new hive on new bars with foundation, taking the honey from the old hive, which was no inconsiderable spoil, destroying the bars and thoroughly disinfecting the hive itself. I confined the bees to their new hive for twenty-four hours, in a dark room, and fed them liberally with phenolated syrup, which, having no choice but to drink or starve, they took at first cautiously but afterwards very freely, and continued to take for a fortnight or more after their liberation. I removed the queen, and, as soon as I could get one, provided a new one by uniting a small cast. Then my patience was tried, for it was fully five weeks before the young queen began to lay, but she has certainly made up for the lost time, as the hive is now a picture, brood in quantities on eight out of ten bars, and a fine store of honey. No sign of disease anywhere, and I hope it will not break out again. Under the circumstances, as there was so much honey, and that in the fine season, comb could be so quickly drawn out, I thought it better to remove the old bars of comb altogether lest bees should stray in from my other hives and so spread the infection.

Our climate here in the South of Ireland is very mild in winter, and the gorse blooms and other flowers peep out so soon after Christmas that honey and pollen come in very early. On the 10th of December, last winter, I saw pollen going into one hive pretty freely at twelve o'clock in the day. A neighbouring bee-keeper, who has some forty hives, left a couple of these to winter without removing the sections which contained no honey, but drawn-out combs only. They wintered quite well, and were the first to yield filled sections, as the bees went up at once honey began to be got on the fruit trees. I have now two late swarms still working (September 7th) hard in their sections, which are well propolised, and

which they do not quit at night, and I shall try the experiment of leaving on the sections during the winter. I think, perhaps, the reason they do not quit the sections at night is that I tried an experiment of laying strips of glass on *top* as well as at the ends of the sections. I did this to prevent the bees coming out and occasionally flying at my face, whenever I lifted the quilt to see how they were working. They have thus been able to propolise between the glass and the top of sections, which are thereby kept very warm and comfortable. Strips of waste glass, an inch or two wide, cut to right length, answer famously. I may add that propolis is gathered here in large quantities, though in an apiary six miles distant none is ever seen in any part of the hives; and this while our flowers and trees seem almost identical. The reason my bees are working so late in the sections is that we have some patches of heather near at hand, and a considerable quantity a couple of miles distant, also in woods close by. I will inform you in due course how the bees winter beneath the sections. I have made a section into a rough dry-feeder, which I will use when the work on the heather is over, removing a full one to make room for it. Of course I will remove all sealed sections, replacing them with others in which the comb has been drawn out, and also put plenty of warm packing over and round the super.

It has been a wonderful season for bees in Ireland. From my own three hives which remained healthy, and in spite of delays from queenlessness, I obtained over 100 lb. sections, and three fine swarms, the last of which weighed 7½ lbs. weight of bees. The first and smallest of the swarms I packed off to the mountains, some six miles off, about July 10th, in a bar-frame hive on foundation only, and without any food. They have now two sets of 21 lb. sections overhead, all filled with honey, sealed and ready to take off in a day or two. The hive, with its two sets of supers, looks a little Tower of Babel.—IRISH NOVICE, *Kildare.*

RECTANGULAR FEEDERS.

Allow me to suggest the desirability of feeders being made *rectangular* instead of *circular*, as being much more readily packed up to with the various carpet coverings, or with the admirable new chaff boxes, which I found last winter to be the most effective and convenient protection to the hives.—T. I., *Maldon, September 5th.*

EXPERIENCES.

I thought my experience of the past year might be interesting to some of your readers.

April 29th.—Had nine hives. Expert from our Association came and saw foul brood.

April 30th.—Used medicated syrup—Cheshire's cure—as directed, squirting it into affected cells after opening them with knife.

May 8th.—Examined all hives; found all affected more or less. Some smelt very badly. Destroyed eight of the worst combs; opened cells of others, squirting in medicated syrup.

May 21st.—By the third week I had lost six queens—six hives without queens, but plenty of queen-cells.

May 28th.—Received from friend four queen-cells, just ready to hatch out; gave them to queenless stocks. By this time two hives had so dwindled that I joined them to other stocks, leaving me with seven hives.

June 5th.—Queen destroyed that I gave, but another from their own cell hatched out, and they all left the hive. I found them next morning in a neighbour's garden, and I gave them a fresh hive.

June 13th.—All hives seemed doing well. I extracted all honey and syrup from all the combs of three hives that had been the worst (they were about clean now), putting the extract by for winter feeding after boiling.

RESULT OF SEASON.

		TOTAL.
No. 1 Hive—	Extracted, 38; section, 51	... 89
„ 2 „	Extracted, 41; section, 48	... 89
„ 3 „	Extracted, 25; section, 37	... 62
„ 4 „	Extracted, 31;	... 31
„ 5 „	Extracted, 22½;	... 22½
„ 6 „	Extracted, 47;	... 47
„ 7 „	The lot that left hive extracted	9½
		350

The quality of honey has been very good this year.—B.

ARE BEES A NUISANCE?

We would heartily thank 'Theta' for his well-reasoned-out article in *B. B. J.* p. 269), but would like to ask him how can the ownership of the said nuisance *be proven in law* who is the owner? Suppose an action is entered against an adjoining neighbour with fifty stocks, and there are fifty stocks of bees kept by twelve different persons within a distance of from one hundred yards to half a mile from the same place, is the owner of the large apiary to be accounted in law a nuisance? For it might be said with truth that some of the smaller keepers are nearer the objector, and that some of his neighbours with one or two stocks, by careless management would be really a greater cause of annoyance, though naturally it would appear otherwise. How can the ownership be proved, for, in the case of swarms, the law allows ownership only if they have *not* been lost sight of; therefore, upon 'general principle' how can it be so proved?—STING.

EXTRACTION OF THICK HONEY.

I see in the *B. B. J.* complaints of the difficulty of extracting thick honey. I find that if the combs are left uncapped a few hours, the honey will come out much easier. I use two cylinder extractors; in the first I put the combs with unsealed honey, and by turning slowly, throw out all the unripe honey, which I use for feeding.—H. E. ROBERTS, *The Avenue, Cosmore, September 4th.*

HONEY-BEES IN THE CAPE COLONY.

In reply to the many communications I have recently received on the above subject, asking for description, character, &c., of the honey-bees of the Cape, I send the following to your obliging *Journal*, and trust that it will cover the whole ground of inquiry.

From my experience of both English and African bees, I do not hesitate to say that the introduction of the latter into English apiaries would be of signal advantage in every respect, if only their transmission could be made easy and practicable.

The honey-bees of the Cape Colony may be typically divided into three kinds—the yellow, the blackish-brown, and the mixed. Representatives of all these may occasionally be seen together in the same hive under circumstances that render the fact somewhat difficult of explanation. To this matter I may hereafter return.

All three kinds are very hardy, vigorous, and active, and thoroughly accustomed to extreme and often sudden changes of temperature, for which this climate is remarkable. During the severe droughts, moreover, which are frequent, and at times much prolonged, when every herb of the *veldt* is parched up, and not a flower blooms, not so much from intensity of heat as lack of moisture, the bees still hold on, and multiply rapidly, though it is not easy to say upon what.

In addition to these physical drawbacks, bees have

enemies in South Africa named 'Legion,'—birds, insects, and reptiles; but the most dreadful, and perhaps the least compassionate, are the devastating Vandals in human form that search out and rob the bees' nests for their honey, and mercilessly deal destruction to young and old.

Taking all things into consideration, it is somewhat strange that bees look up at all here in trying times, and certainly wonderful it is to observe how marvellously and speedily they recover themselves, and rise superior to their misfortunes.

Of the yellow variety it is singular that, from the same mother, in the same hive, and of the same brood, two sorts of workers spring in colour entirely unlike. One of these is readily distinguished as a yellow bee, though some are much yellower than others; and these bees constitute the bulk of the population. The other sort, which occurs very sparsely in the hive, looks to be of more tapering shape, and is of an iron-grey colour, striped on the abdomen with silver-grey. In a typical specimen no yellow whatever is seen. This points possibly to an early cross with a dark race, to which these last, though there are not many, are reversions.

I know nothing of Asiatic, or other varieties, nor even of the Ligurian, except from description, nor of their hybrids, so that I cannot speak of Cape bees in comparison with them. One thing, however, is very certain, even in the purest yellow stock, to be found, that all the worker offspring of the same queen are not like their mother in colour, nor are they all counterparts of each other, nor do they all resemble their reputed sire —indeed, I have seen drones quite opposite in colour—proceeding from the same hive and of the same brood. From this, perhaps, we may at least conclude that the yellow bee as it is here is not an absolutely pure variety.

The hairs on the head, legs, and body of this bee are of an ochreous or brownish-yellow colour, and especially so on and around the triangular piece of the thorax, just above the junction with the abdomen. This piece of the thorax is of an aureolin or dark gold colour, and is a distinguishing mark of this variety. The upper two-thirds of the abdominal rings are of the same dark gold colour, striped just below the upper margin by a fine streak of jet black; this is followed by a broad band of dark gold, then two bars of black, separated by a thin stripe of gold, less vivid. The lowest anal segments are of an iron-grey tint, growing gradually lighter towards the extremity, and striped with silver-grey. The queen resembles the worker in colour, but the black bands of the abdomen, which are not so emphatically drawn, are of a purplish-brown, shot with grey, and there are no silver-grey stripes as in the worker.

The drones of such a stock are fine, burly fellows, not usually very numerous, and not much resembling their mother, except in the purplish-brown of thorax and abdomen, nor the worker, except that they are striped on the abdomen. These stripes are of a dull yellow colour, and on the lower margin of each segment, but the anal one,—which is all brown, and fringed with brownish-yellow hairs. The upper segments are encircled with brownish-yellow hairs, becoming gold-coloured tufts under the wings, and forming a dense ruff round the throat. The head and thorax are brown, and closely covered with brownish-yellow pile, which extends to the ventral, or lower surface. Like the queen, they have no silver-grey upon them.

In a typical specimen of the other inmate referred to, dark iron-grey on the abdominal bands catches the eye instead of yellow, and so also in the hairs of the head and thorax. Around the whole length of the abdomen, which appears more tapering, delicate stripes of bright silver-grey seem to usurp the place of black ones. The lower rings are much lighter than the upper, and resemble those of the preceding.

The blackish-brown bee of South Africa is, I think, closely allied in character and complexion to the common bee of Europe, and is gifted with the same shortness of temper, though by no means yielding to it in activity or prolific power. The drones are much smaller than those of the preceding, are of a brownish-black colour, and have no stripes at all on the abdomen. There is a wide contrast between the two native kinds in this matter of techiness, and, indeed, other important particulars, though in gathering and storing qualities the darker varieties are, if anything, more infatuated with their work, and more jealous of the results of their labour.

It is in the hybrids, however, and these are naturally far commoner, that the force of character and distinctive traits of both varieties are seen more or less amalgamated—the fierce ardour and disposition of the darker bee, or the steady, practical industry of the yellow, being, as it were, measured by the predominance of one shade of colour over the other. The drones of the mixed varieties resemble those of the yellow bee, but the colour is less ochreous, and the yellow stripes are duller.

These bees are of excellent temper, and withal so nervously anxious for the safety of their queen that they are readily alarmed on her account, and are thus exceedingly manageable. In dealing with them I have never used smoke, beyond, maybe, an occasional whiff from a cigar, which is at no time necessary *when gentleness* is exercised; and though my hands are always bare, I never get a sting, nor am I threatened with an attack. Such an article as a smoker I have never at any time used, and, indeed, I have never seen one. They are very busy gatherers, working early and late, even by moonlight, it is said, and they lay up large stores of honey and pollen. On this account, they are enabled to continue breeding till very late in the autumn, and not unfrequently throughout the winter months, and this notwithstanding cold weather and prevalent bleak winds which are felt here sometimes during a season otherwise most delightful. During rough weather they stick closely to the hive, but in the early spring, and whenever the weather is propitious, they fly very strong; and where honey is to be had, or pollen, they are abroad in numbers to gather it. They are readily kept from swarming.—J. W. Stroud, M.D., *Port Elizabeth, South Africa.*

JOTTINGS.

'C. C. J.' in his remark anent the good Bee Associations have done poor 'Hodge,' must have multiplied the price he used to get for his honey by at least three times. I myself can remember thirty to thirty-five years ago when I as a boy used to *mind* the bees, my friends used to keep bees and used ekes ('rears' we called them), and I well remember the price was 5*d.*, 6*d.*, and 7*d.* the highest; and I have heard them say that years before, say fifty to sixty years ago, the price was 4*d.* to 4½*d.* I daresay, in a few instances, a cottager made 1*s.* to 1*s.* 6*d.* per lb. with a few pieces of selected honey-comb out of his maiden swarms, or by one a little in advance of his neighbours who used a small straw cap and thereby got honey of the quality we now get in sections, and sold it to the squire or clergyman of the parish at a fancy price, and very often it was done by way of encouragement to the cottager, and should not be taken as any criterion of market price. I think in the near future that the cottager must amend his ways or his honey will not go down with the public, and it has been the aim of the Associations to teach him a better way, so that he may keep abreast of the times; and, in some instances, they have succeeded, but in many others 'Hodge' will not budge, and still sticks to his brimstone pit, and then breaks up all the contents of the hive together, brood, pollen, and honey, mashed up with an iron spoon in one mass.

As far as my experience goes there is no way of pre-

venting occasional deposits of pollen in sections. I have found it in glass supers worked through excluder zinc.

Kindly allow me to indorse 'C. C. James,' page 285, par. 3, in his remarks about excluder zinc. I have never used it between frames and sections, and I get very few sections spoiled with brood, not 1 per cent; but when I do, it is invariably drone brood, and I think that may be accounted for by the fact that modern bee-keepers use worker-size foundation and crowd the drone-comb out of frame-hives, so that the natural propensity of the queen to deposit drone eggs, about the time the first sections are being filled, is sometimes gratified by the queen finding her way up into the sections; and another reason why some get the queen up into the sections is because they do not cut their dividers wide enough, leaving too much space at top and more especially at the bottom.

In par. 4, the question of bees showing indication of swarming after the removal of sections is very probably caused by 'C. C. J.' using his smoker rather freely, which drives the bees to gorge themselves with honey, and consequently they will be in an excitable state for several hours, and show the usual indications of swarming, viz., full at entrance, with bees idling about, &c. Now if I may suggest to 'C.C.J.' how to remove his sections with least disturbance to his bees, let him always remove the entire crate, and also do it when his bees are busy at work, when the majority are in the fields, and never take a full crate away and put an empty one in its place, or his bees may get disheartened: but as soon as the bees begin sealing the sections remove the crate, and put another on next to frames, and place the other on the top, and by the time they have finished sealing the sections in the top crate, they will have got on with the bottom, and so lead them on. I may add I use very little smoke, often none at all, in removing sections. My bees are all English and fairly good-tempered. I am sorry to say they get a little upset sometimes, and then my neighbours have recourse to the blue bag, and some of them have had to grope their way about with only one eye for a day or two this season, through a superabundance of fat in the ocular region.—WOODLEIGH.

REVERSIBLE FRAMES.

Since the publication of my letter in the *Journal* of 1st September, I have received upwards of one hundred and fifty applications for my Reversible Frames. I did not expect so large a number would apply, and I am sorry to say that all the available wood I had in stock I have used up to supply the greater part of these applications.

I wish to intimate to those who have not, up to the present time, received a frame, that I hope to be able to forward one to each applicant within the next fortnight, as I have ordered some hundreds of feet more wood. I shall therefore be glad if all persons wishing to avail themselves of my offer would kindly apply within the time mentioned.—C. G. MASON, *Lothian Bank, Dalkeith, N.B.*

WINTERING BEES ON CANDY. SOME OF THE WORK MR. HEWITT IS DOING.

Mr. E. J. Gibbins, page 289, complains of no reports as to how my candy system succeeded in 1883–4.

In the fall of 1883 I claimed that bees could exist on candy alone; my theory was challenged by the authorities and bee-keepers were advised not to try it. But it proved a success.

When I began to study and write on bees, I did so for the 'love of the thing,' the interests of bee-keepers, and if I could add a mite to apicultural knowledge, or assist others in doing so, I felt satisfied and sufficiently rewarded.

This summer I have been personally teaching cottagers the bar-frame system in their own gardens, I finding all appliances and doing the work, and they finding the bees. In addition to this I show them how to make hives, &c., for themselves. The results have been very satisfactory to all parties; but with my business engagements and my own apiary I have had my hands full, with the result of a mass of letters requiring attending to before I do more writing. But as soon as the season is over and all are packed up I shall have more time till next spring, when I shall have to consider quite a swarm of skepists who want practical home lessons in modern bee-culture, and I certainly think this teaching plan of mine before anything ever attempted previously; they see the whole process without any suspicion of deception. One would have it that a certain modern bee-keeper mixed or fed sugar with his honey to get his big crops; he *knew* no sugar was fed to the two stocks I worked for him. Another exclaimed he could not have believed bees could gather so much honey.

For the information of Mr. Gibbins, I may inform him that last year bees with queens were shipped across the Atlantic on candy alone, and astonished the 'cute' Americans by the fine condition they arrived in—no water, no loose sugar, no condensed perspiration, but all eat before them in a dry pine-box, and this year they are being shipped to America, as well as here, direct from the East, in the mail bags, on candy alone.

This *Journal*, however, does contain some flattering reports of its success as winter food, and only one failure by one who *did not* follow my instructions.

All being well, I expect to pack up in November some thirty or more stocks on candy, but much different to what I did in 1882—having made some improvements in it.—JOHN HEWITT, *Sheffield, September 4th.*

BEE PLANTS.

As a knowledge of those plants that bees work freely on is of great advantage, too much light cannot be thrown on the subject. It is strange that a plant that would be covered with bees one year would hardly be touched by them the next, due, most probably, to climatic influences. Laurustinus was little worked on last spring; I think it is distasteful to bees, and that want of pollen alone compels them to do so, for it is deserted at once for the furze or gorse blossoms. Berberis Darwinii is one of our best and earliest shrubs, highly ornamental, most floriferous, and lasts nearly a month; quite hardy, and beautiful in bloom and berry. Buddleia globosa is another shrub highly attractive to bees, and is both hardy and ornamental. Single wallflowers give a long season in bloom, are most valuable, and should be largely planted. Limnanthes also is well worth growing—so much sought after by bees; continues so long in blossom, and is most easily grown. Sycamore, a highly ornamental timber tree, is a large honey producer. Turnips and cabbages allowed to bloom come in well in spring, when there is little else. White mustard, trifolium incarnatum, buckwheat, vetches, should all be largely grown by farmers who are bee-keepers, as they are excellent forage crops, giving honey and pollen to the bee, and a plentiful supply of green food to cattle in the stall or fold after. Apple blossom and white clover need no comment. Buckwheat and mustard sown in July prolong the season; those with the blackberry, in favourable seasons, will meet the ivy in September, and that, if the weather is favourable, will give abundance of honey and pollen until November 1st. It was so here last year, in fact, much more honey was made and stored on ivy than on any other forage during the season. Melilotus leucantha is a wonderful bee-plant, biennial, growing to a height of seven and eight feet; is crowded with small pea-shaped flowers, which are covered with bees and flies from morning to night. This commences to bloom about August 1st, and continues for nearly two months, affording both honey and pollen and stimulating brood

raising. Borage, crocus, mignonette, cornflower, anemone, poppy, and many others, might be added to above list—many of which might be planted in waste places. Old corners dug out, gripes of fences cleared, and planted; wallflowers will grow on old walls: I saw an old castle nearly covered with them. Blackberry pollen is of a dirty white or light grey colour, not black. I fear I have already trespassed too much on your space and patience. —JOHN J. SMYTH, *Ballinacurra, Co. Cork.*

A YEAR'S WORK IN A PLATELAYER'S APIARY.

In the autumn of 1884 I went into winter quarters with thirteen stocks. Perhaps it would be of some service to your readers to detail the system which I have for the last three years adopted. I do not pretend to have discovered anything new, but simply to have adapted to my locality the rules laid down in the *British Bee-keepers' Guide.*

Here on the edge of the far-famed Romney Marsh, noted alike for its heavy corn-crops and sheep's heads, the bees have pretty well finished the harvest by the middle of July, and consequently about that time section racks should be removed, the honey from two or three frames extracted, and returned to centre of brood nest, which usually arouses the flagging energies of the queen. In about a fortnight later I commenced to reduce for wintering by passing the two outside combs through the extractor, returning them to the back of division board, to be cleaned out by the bees. I find that this effectually stimulates late breeding. Some ten days later I go over them again, remove combs, and extract as need be, always giving combs back to be cleaned. By adopting such a course I manage to get them nicely packed on six or seven frames with brood on three or four by the end of August; after which time they are left pretty much to their own devices till the spring comes round again, and without the labour attending the extracting of all the honey, and then fussing about late feeding, with its attending evils.

Early in March I gave each colony a clean hive. Found they, with two exceptions, had wintered well. Examined again in a few days, found breeding had commenced: uncapped some of the remaining store every few days. Soon I had, by changing frames about, the whole of them charged with brood. Then, and not till then, did I enlarge the brood-nest by dropping into the centre combs stored from the previous year. I might say, in passing, that I kept some few frames of sealed honey all winter; these came in handy to give to colonies short of stores; the majority did not need any such assistance.

Early in May I had them covering ten or twelve frames: on the 7th I introduced clean comb into centre of selected stock, first marking top bar with conspicuous pencil-mark. 9th. Removed queen and brood to new hive, leaving marked frame with eggs, and placing four combs of previous year, two on either side. For various reasons I prefer such a plan before the ordinary methods. Firstly, you concentrate the full energy of nurse bees on eggs of the right age to give best results; secondly, by not changing hives you are not so likely to create such an uproar, particularly when hives are of different shapes and colours; thirdly, by marking frame and not allowing eggs or brood in any other you always know where to look for queen-cells. The last item is of considerable moment when one is compelled to manipulate when most of the bees are at home. Someone has said foundation will answer as well as combs to fill up hive with. I find my bees when queenless refuse to work.

Ten days later I formed nuclei in the usual manner. Owing to cold weather I did not super till the middle of May. By removing a frame or two I forced them into supers at once; I soon had to lift racks and slip empty ones underneath. Early in the season I find work progresses better by putting crate under partially filled ones. Later on, when honey is not so plentiful, give empty rack on top. When June came in with the very hot weather, owing to unfortunate delay in arrival of foundation, I got many swarms. I followed Mr. Simmins' plan of removing combs and returning bees, leaving two frames of sealed brood and then replacing supers. Being unable to be present to watch them when they swarmed out, I adopted the plan of a bee-bob, having noticed that a spot once selected to settle on by a first swarm usually offers inducements to other swarms to settle on the same spot, (how provoking to the novice if it is in the centre of a thorn-hedge!) When my first swarm issues and clusters, after having hived them, I take the bough on which they cluster, and make a bundle of it, about the size of a birch-broom, hang it in a convenient place, near to the apiary, shaded from midday sun. By adopting this plan, I believe I have saved several swarms this year which undoubtedly would have absconded if they had clustered in the sun. Some of our mechanical friends undoubtedly could arrange to make them self-hiving by applying the old steel yard principle to the contrivance. In fact I believe something has been done in America in that direction. In its simple form, such as described, I have had full seventy per cent alight at the proper place.

During the rage for swarming which my bees evinced, unfortunately I ran short of foundation for stock-hives; so, to husband it out, I gave half sheets, which I found poor economy, as in every instance they filled up the blank space with drone-comb; with some that I gave simply a guide, they filled with worker. By extracting from combs of hives that swarmed, and giving brood to nuclei, I built them up to good colonies.

A correspondent in the *Journal* lately evinced some surprise at the way a gentleman connected with the *B.B.J.* worked up such gigantic stocks. I might tell him that I had one hive with thirteen Association frames and forty-two 1-lb. section boxes swarm for want of space; had the hive roof been deeper, possibly I might have prevented it. And my bees are only black with just a dash of Ligurian blood in them. I might say they were believed to be pure till last year, when the progeny of one young queen showed one yellow band, proving, without a doubt, queens or drones, or perhaps both, fly a very long distance, as the nearest Ligurians I know of are five miles in a direct line from here. This year I find several colonies show the characteristic markings.

I almost forgot to say the two stocks mentioned above as having wintered indifferently, one through the continuous tapping of tits at the entrance (they were in in an Anglo-German hive, thus giving their enemies every chance), thereby bringing on dysentery. The other was a lot of condemned bees. These I united towards the end of April, thus giving me twelve to start with. By artificial and natural swarming, I increased to nineteen, and lost one rousing lot. My three best stocks have given 108, 90, and 64 1-lb. sections respectively. The total from all hives, practically twelve spring count, has been a trifle over 800 lbs., viz., 540 1-lb. sections, four 20-lb. Stewarton supers, together 80 lbs., and 185 lbs. extracted. In addition to this I have some eight or nine frames of sealed honey, which I shall keep over against any emergency in early spring. I might say all the syrup fed by me this year was 1s. worth to induce cell-building when rearing young queens. I have reduced to fifteen stocks for wintering, nine of which are headed by queens of the current year raised in selected stock. No doubt my letter will not contain anything new or very interesting to the advanced bee-keepers, but if there is anything not quite clear, I will be pleased to explain through your valuable paper.—PLATELAYER, *Ruckinge, Ashford.*

EXTRACTORS.

In reply to inquiry respecting the Cowan Rapid Honey Extractor manufactured by me, which gained the first prize at the Caledonian Show, Aberdeen, and the first prize Honey Heather Extractor, I beg to state that in the former the cages revolve, and in the latter the honey is pressed through a perforated tube by means of a screw and a wood block or piston. No other method does its work to perfection; all other extractors are worthless for our Scotch heather honey, and I presume English as well.—W. W. Young, *Perth*.

HUMBLE BEES.

Can any one tell how humble bees can be kept alive in health to the spring, and induce them to build their beautiful nests in boxes?—Red Clover.

[See paragraph on Humble Bees, p. 306].

BEE-HOUSES.

As 'Icarus' asks for advice as to bee-houses, I beg to suggest to him an idea that struck me when reading his letter, that if I was going to establish an apiary away from home I should use single hives as in a garden and fence them in with unclimbable iron fencing in preference to a bee-house.—Woodleigh.

DIRECTIONS FOR USING THE COMBINATION DUMMY FEEDER FOR SYRUP FEEDING.

Place the dummy in the hive, putting the side with the slit towards the inside. Remove the tin, and having filled and corked securely, invert it over your syrup jug, and hold it there until it has ceased to drip, then replace it in its position in the dummy, taking care that the perforated edge comes against the slit. When placing the dummy in the hive notice whether there are any bees on the outside comb, if not it should be removed. More holes may be made in the tin for copious feeding, and may be stopped with wax when not required. The tin being air-tight the syrup cannot escape, except as the bees take it. When feeding is done, the dummy may be filled with cork-dust or chaff, and may also have a strip of felt round the edge, when it forms an excellent winter dummy.

For dry sugar feeding the tin must be removed and the dummy reversed, the bees can then get at the sugar through the slot on the top edge.

The dummy can be made stouter to order, or with one side to open out as the ordinary dry sugar feeder.—W. H. Dolan, *Louse, Maidstone*.

SHOW AND BEE-TENT ENGAGEMENT.

Nottinghamshire.—Sept. 22, Radcliffe-on-Trent.

Cleanliness of Bees.—A correspondent in *Longman's Magazine* gives the following incident showing the dislike which bees have to bad perfumery. He says, 'Some years ago there was in my father's garden a plot of early potatoes, some distance in front of a spot where stood several hives. Early in the season the 'rooks' commenced to help themselves to the potatoes, grubbing the young tubers out of the ground, and doing so much mischief that some had to be shot, and the dead body of one was impaled in the middle of the plot, as a warning and example to the rest. Soon after this, a most unaccountable fury took possession of the bees. No one dared to approach them, for they attacked and instantly put to flight every person or animal which ventured into the garden. This went on for some days with most unpleasant results, and the bees were fast becoming a nuisance in the neighbourhood, when the mystery was accidentally explained. Some one happening to pass by the impaled 'rook' in the evening, discovered the cause of all the mischief. Every exposed part of the poor bird's body, especially about the mouth and eyes, was literally bristling with the stings of hundreds of bees, which had sacrificed themselves in a vain and senseless revenge upon its offensive presence.'

Foreign.

FRANCE.

Hydromel.—As numerous letters have been reaching me, asking to be informed upon the best mode of making hydromel, I will explain to them in the following lines the *modus faciendi* adopted by us in order to produce this beverage from the products of bees, particularly as it is admitted by connoisseurs to be a really good article. It is not at all with mere wax-water or inferior and cheap honey that we manufacture this beverage, but rather with honey gathered from sainfoin, clover, lucerne, lime-trees, &c.; pure super honey extracted and not pressed of the latest season. To begin with, we have therefore a complete absence of foreign matter. The recipe is as follows:—Pour into a copper pan or a large tin pot (never use an iron one, as it would turn black) as many litres of water as litres of hydromel you purpose making. When this water is hot, add 500 grammes of honey for every litre of water. Stir this mixture well with a stick of a T shape if possible, or else with a flat piece of wood, so that it may not be allowed to burn or to thicken. As soon as it boils, commence skimming and keep your fire under proper control. If the fire is greater than necessary the whole of the liquid might boil over. Let it boil at least for two hours until the liquid becomes reduced by about one third, and sometimes even one fourth of its original volume. Nor should it be allowed to boil longer than the time just prescribed, for in that case it would get thick and take the form of syrup. Run it into a cask, as soon as cooled, of a convenient size, but care must be taken not to bung it up. This done, place it in a dry place that it may ferment during the following few weeks, nay, even months sometimes. Some people stop this fermentation by adding to it a small quantity of sulphuric acid, well diluted in water; I cannot advise this plan, as the acid is injurious in every respect, and turns the liquid acid too. Once fermentation has stopped of its own accord, the hydromel may be bottled away. In selecting your bottles remember to give preference to a wide-necked pattern. It has been found that hydromel improves better in bottles than in large receptacles. With age, this liquid will first take the form of an old Madeira wine, later on it may be mistaken for old cognac, and finally becomes a pure alcohol. As a case in point I may say, that at a recent sale a friend of ours bought some hydromel in sealed bottles over thirty years old, and it was found to be a pure alcohol.

We advise all earnest bee-keepers to use every means at their command to make this beverage popular, formerly called 'the drink of Gods,' not only in the country, but in towns as well. For our own part, we consider it the *ne plus ultra* of hygienic beverages, and ought to be on the after dinner table of the rich as well as of the poor, hence my advice to my colleagues, 'Keep a small cask of it in your cellar.' It is better for you to take a glass of hydromel than a glass of brandy, leaving alone those spirits which produce a brutal drunkenness. For many a constitution, hydromel is to be preferred to what is called Dantzick cassis, cream of mint, &c., and many other beverages less worthy of recommendation. Let hydromel made as herein directed be our future drink: it is easily made, and in flavour is not inferior to Madeira, Malaga, and other wines. Then again, the more popular

it becomes, the readier will be the disposal of our honey. In bringing our recipe before the public, we have only one object in view, viz., to show the people how to procure for themselves a wholesome drink. The French Temperance Society invites us to take this step, and even suggests that those who have an eye upon the business might find it worth their while to consider the profitable side of the question. And why not? Mr. Collin d'Harleville said, that 'impossible' should be in no man's dictionary. In this case it is only a question of setting to work.—J. B. LERICHE, member and Laureate of the French Temperance Society, and hon. member of the Paris, Somme, Gironde, Aube and Alsace-Lorraine Apicultural Societies, &c., &c.

CURE OF FOUL BROOD.—In the last number of *l'Apiculteur* M. Adèle Jarrie, who lives in the neighbourhood of Toulouse, describes his successful treatment of foul brood by means of camphorated syrup. He cuts away the worst of the diseased brood-combs and feeds with camphorated syrup, which the bees take eagerly, quickly rebuild the combs, and the disease entirely disappears. After getting rid of foul brood effectually in his own apiary, he directed his attention to experimenting. Several hives were in succession infected with the disease, and he stated that in every instance the result was the same: 'The bees rebuilt their combs and this horrible foul brood has entirely disappeared.' He says that from June to the present time (15th August), during the intense heat, when foul brood is generally at its worst, he has had no signs of the disease reappearing. His hives have given him a swarm each and have twice rebuilt the combs (honeycombs?) cut out by him.

REPORT.—When we penned our review on the 25th of May last, the apicultural outlook was not a very encouraging one; but a change for the better took place the day after, and bees began to bring in honey in earnest in all the sainfoin-growing districts. Thus, in the Gâtinais, the honey glut lasted until the 8th or 9th of June, that is to say, from thirteen to fourteen days, whilst in some other districts it has lasted even a little longer. In the neighbourhood of Paris, except on the north side, the yield has, on the average, been as large as last year's; in some localities it was even exceeded. Taking it altogether it may be said that the income has been as large as last year's, if not slightly larger.

The pressing question now is how to dispose of all this honey. It is a well-known fact that there are several lots yet unsold from last year's stock, and it is no secret that several holders disposed of theirs just before the new glut at a sacrifice. So much is this the case that in some instances, honey in pots exchanged hands at from 60 to 75 francs per 100 kilos, figures often exceeded in an ordinary season, even by the so-called red honey. We know of cases in which, although 135 francs per 100 kilos had been paid by the wholesale dealer to the bee-keeper, the honey had to be disposed of to grocers for only 110 or 115 francs; yet the latter are keeping up their retail figures and are realising from 25 to 50 per cent profit, thereby checking, however, the consumption to a considerable degree. We have pointed out this anomaly at the Chartres Congress, and have shown what should be done to put a stop to this drawback, resulting from a combination of cheap sugar and exorbitant profits expected by the middleman.

Death has lately removed from among us two prominent friends of apiculture, namely, M. Cayatte and M. Sigant. To the pen of the former is due *L'Histoire de mon Rucher*, and *La Ruche de l'Instituteur et du Presbytère*. The latter had also rendered considerable services to the bee cause, and for the last twelve years had acted as treasurer to the 'Société Centrale d'Apiculture et d'Insectologie' of Paris. Their removal from among us at the present time is an irreparable loss to apiculture. —(*L'Apiculteur.*)

ITALY.

The *Apicoltore* understands that Monsieur Hamet, editor of the *Apiculteur* of Paris, may be expected to visit the Bee Exhibition which is to take place at Milan in September. The Italian organ calls upon every member to contribute as much as possible to the success of the exhibition, to the end M. Hamet may be favourably impressed with the state of bee-keeping on the Italian side of the Alps.

The members of the bee community are much flattered at the honour recently conferred upon their worthy President, Count Gaetano Barbò', who has just been elected a member of the Superior Council of Agriculture, as in his new capacity the Count will be in a favourable position to put forth the claims of apiculture.

Signor Giacomo Guazzoni, librarian and director of the Apicultural Museum, has, after a long series of experiments, discovered a new and effectual method of making comb foundation without the assistance of expensive machinery.

AUSTRALIA.

(*From the Adelaide Observer.*)

The Fairfield Apiary is the property of Messrs. Coleman & May, who have brought much knowledge and intelligence, and no small amount of capital, to bear upon the prosecution of their work. The site on which the hives are arranged is admirably adapted for bee-culture. A gentle slope, having an eastern aspect, and well sheltered in the rear by a close hedge, has been apportioned to the busy workers, and the vines with which the ground is covered give additional protection to their homes on hot summer days. The country all round is rich and fertile, and in the garden and orchard close at hand there is a fine field for an enterprising bee-keeper. But better far than garden flowers and fruits are the indigenous gum-trees which grow thickly on the adjacent hills. When the red-gum is in full blossom the honey pours into the hives, and from white and blue-gum also a plentiful store is obtained. Experience shows that although, while it lasts, the red-gum is most prolific of honey, that obtained from the blue-gum is of better flavour, and as the latter remains in bloom much longer than the red-gum it is the most profitable to the apiarist. Last season was an especially favourable one, as all the gums were in splendid condition and continuous flower, and the bees filled and refilled the hives almost as quickly as they could be emptied. Although at the beginning of the season—which generally lasts from the first week in October to the wet and cold weather which comes with the end of February—there were only twenty-seven hives at Fairfield, the total yield of comb and extracted honey reached six tons (13,440 lbs.), and all found ready sale at from 4½*d.* to 6*d.* per lb. From the best hive, 414 lbs. of extracted honey were obtained during the season, while 154 section boxes—each containing one pound of honey—were obtained from another hive. The constant removal of their stock acted as a stimulus to the work of the bees, who were apparently afraid that unless they were rapid and vigorous in the collection of more honey they would go short in the winter. The hive from which the 414 lbs. were taken averaged 11½ lbs. a-day for four days in the height of the season (about the middle of January), and for some time maintained a record of 60 lbs. a-week. Another hive, which contained nine frames—each 17 in. by 8½ in.—gave 48 lbs. in the first eight days, and its total had reached 1 cwt. in three weeks. Notwithstanding the constant depletion of the combs, the bees still found leisure to swarm, and by natural increase the number of hives grew from 27 at the opening of the season to 109 in January.

In January the hives were all overflowing with bees. A swarm thrown off by one of the hives when weighed turned the scale at 11¼ lbs., and, as 4000 bees go to the

pound, it will be seen that there were more than 44,000 bees in this colony. As barely two-thirds of the bees came out, and this was far from the strongest hive, it is fair to assume that the mid-season strength is from 60,000 to 70,000. The average strength throughout the season may be stated at about 49,000. At present it is probably down as low as 20,000. Even in the winter the bees are always gathering something when the weather is favourable, but they eat more than they store. In the bottom of each compartment, therefore, about 30 lbs. of honey is left for winter food, and it is likely that a fourth of this will be left when the active work of next season commences.

With two exceptions, all the hives at Fairfield are tenanted by the common black bees. Of the others, one is filled with Ligurians, and the other with hybrids. There is a good deal of difference between the aristocratic Ligurian, with his distinguishing yellow marks, and the humbler honey-maker. The Ligurian, as befits his better birth, is of a milder temper, but, unlike the higher classes, he also works much harder than his plebeian neighbour. The quality of the honey is the same, but each Ligurian makes much more in his short lifetime than does the black bee. He manages also to get more into each cell, and as the honey is closer to the sealing, it shows through in many places, and therefore externally the combs filled by the Ligurians have not the clean whiteness usual to the generality. The Ligurians are very careful in guarding the entrance of their hives, and the several sentinels stationed there rigorously exclude strangers. It is no uncommon thing to find a Ligurian among a swarm of black bees, but it is rare that a commener forces his way among the nobles. Even bees are tuft-hunters it would seem. The hybrid bees—bred by a Ligurian queen who has mated with a black drone, or *vice versâ*—are much more savage than either of the other classes, and it is often absolutely dangerous to interfere with them. They are distinguishable from the Ligurians because they only bear one yellow band behind the wings instead of two. It sometimes happens that the black bees will not accept a hybrid queen, and at Fairfield a swarm ruthlessly murdered one which was introduced into their hive. There is no appreciable difference in the quality of the honey made by the different classes of bees.

BRITISH BEE-KEEPERS' ASSOCIATION.

Second Class Examination.

Candidates who have taken Third Class Certificates and being desirous of competing for a Second Class Certificate, are reminded that they must give notice to the Secretary of their County Association on or before October 1st (see Advert.)

Bligh Competition, 1884-5.

The awards in this competition have not yet been made; we hope to be able to publish the result in our next issue.

Quarterly Meeting, October 21.

Notices of motion for this meeting must reach the Secretary on or before September 23rd.

Detecting Glucose.—The Rev. J. G. Teter, in the *Bee-keepers' Magazine*, gives the following test:—'A cheap and easy way to test the presence of the poorer grades of glucose in honey is to put some of it into a cup of tea made streng. If it is heavily adulterated with the poisonous compound found in glucose, it will turn black almost like ink. Another test is to pour alcohol and this poisonous compound together. Pure honey and pure alcohol will unite, but pure alcohol and this poisonous compound will separate like oil and water.'

Surrey, Merstham.—An instructive address on 'Practical Bee-keeping and its advantages' was given by Mr. Thomas Fisher, one of the churchwardens for this parish. Cottagers were specially invited to attend. Mr. Fisher dealt with the subject in an able and interesting manner, and a hearty vote of thanks was accorded to him at the close of his lecture.

Lecture on Bee-Keeping.—Rev. Prebendary Wolfe presided, August 13, at a lecture given in the Upton Parochial Room, Torquay, by Mr. W. N. Griffin, of Exeter, on 'Bees and Bee-keeping,' under the auspices of the Devon and Exeter Bee-keepers' Association. The lecture, which was illustrated by models and diagrams, was a most interesting and instructive one, and was given in a style which showed that Mr. Griffin was not only thoroughly and practically conversant with his subject, but was well able to convey a good deal of useful information concerning it in a simple and easily understood manner. Mr. Griffin's discourse was eminently calculated to kindle interest in the pursuit of bee-keeping in the neighbourhood, and he was rewarded by having a most attentive, if not very numerous, audience, by whom he was accorded a hearty vote of thanks at the close.—*The Western Morning News.*

A Quaker's Revenge.—A custom prevails in some parts of the United States, especially in the towns and villages of the Far West, of serenading newly-married couples. This delicate attention is sometimes taken in good part, the serenaders are invited to drink and afterwards retire. Such, however, is by no means the rule. These serenades have been known to lead to serious consequences; shots have been exchanged, and an instance is reported of an indignant bridegroom having his house sacked and being lynched by the serenaders after having shot two or three of their number. Occasionally a cool and cautious customer is met with, who will neither 'stand drinks' nor 'show fight,' in which case the musical performance is usually kept up for his benefit till daylight, and his windows are then broken as a mark of the musicians' contempt for his meanness. When a marriage takes place which is regarded with disfavour by the 'hoodlums' of the district, such as that of an unpopular person, or in cases where there is great disparity of age, this serenading is made as objectionable and as excruciating as possible. A case of the kind recently occurred in a village in Iowa. A certain Mr. Fox, a Quaker, at sixty-four years of age, took to himself a young wife, and the young men of the neighbourhood determined to give him a serenade. He was a total abstainer, and they knew he would not 'stand' anything; and as he was also a man of peace, they concluded he would not fight, and might therefore be annoyed with impunity. Now Mr. Fox had fully expected a midnight visit, and being determined not to submit to a prolonged annoyance, he had made arrangements for the reception of his visitors. He was an apiarist, and had a dozen large beehives on his premises, tenanted by a particularly large and fierce description of bee, which when fairly roused 'would not let upon a man under three miles.' On the evening of the expected visit Mr. Fox moved all these hives to the roof of his front verandah, placing them dangerously near the edge. He then provided himself with a long pole, and went calmly to bed. In due time about fifty young men collected in the front yard and begun to make a fearful uproar. Mr. Fox stood it for about a quarter of an hour, and then got up and remonstrated with them from his bedroom window. His appeals to his tormenters to leave were, however, only met with derisive jeers and a renewal of the hideous row. Mr. Fox thereupon, with the aid of his pole, upset the twelve beehives into the yard below, and retired, taking care to close his bedroom window. Presently the music gave place to terrific howling, and there was a headlong rush from the front yard. The Quaker afterwards heard that

several of the serenaders were likely to be blind for a considerable time, at which he expressed sorrow, but added that people who will meddle with beehives must take the consequences; and that if the young men had kept out of his front yard they would not have disturbed the bees.—*American Paper.*

An Airy Bee-Nest.—In driving some bees for a lady I found a colony of bees very comfortably lodged under a stool between the three legs; they wintered there last winter, being a swarm of '84, and cast a swarm this season. They had no connexion with the bees in the hive on the stool, as I found a queen in the hive on the stool, also one with the lot underneath; rather a parody on cork sides and chaff cushions, warm wraps, &c.—Woodleigh.

Bees and Roses.—[In reply to a letter from Mr. Humby, Lincolnshire, complaining of the damage done to his roses by bees.] It is scarcely possible to take Mr. Humby seriously. The suspicion that the poets have taught him the habits of the 'honey fly' can scarcely be resisted. Pray let me tell facts against Mr. Humby's playful imaginations, even if they bring upon me the charge of boasting. I sacrifice my bashfulness for the sake of the 'beastly bee.' I keep bees and grow roses, and roses and honey have received the judges' favourable decision. Last year I took nearly six hundred pounds of honey from eight hives, and I won three first prizes at the National Rose Society's Show. My bees and roses are close neighbours, and the bees 'do no ill to their neighbours.' I agree with an 'old bee-master,' that bees seldom visit roses. Good roses do not, like those of Mr. Humby, 'show a disposition to unfold'; indeed, it is almost impossible for a bee to get into a well-grown rose. They do sometimes get into them in August and September, but seldom in June and July, when the rose shows are on. Mr. Humby's roses apparently are always of an expansive disposition, and it is not surprising that when the bees are caught by the inviting eye they yield to its seduction.—F. Page Roberts, *Scole Rectory, September 2.* (*Standard.*)

Humble Bees.—It is a well-settled fact that humble-bees contribute their share toward the fertilisation of red clover, while visiting the blossoms for the nectar they contain. Italian honey-bees also perform the same office for the clover, and many other flowers whose nectaries were too deep for the 'old-fashioned' black honey-bee. There is no way of keeping colonies of humble-bees alive through the winter. All but the queen-bee die late in autumn, because they have lived out their life. The following spring more bees hatch out from eggs laid by the queen, live out their summer life, and die.—*Prairie Farmer.*

Curious Custom in Sussex.—At the Archæological Congress, held lately in Brighton, Mr. F. E. Sawyer, F.S.A., read an interesting paper on 'Sussex Songs and Music.' Amongst other things, he stated that wassailing was not yet extinct in Sussex. In West Sussex orchards and bee-hives are wassailed, and a ryhming song used on the latter occasion runs thus:—

'Bees, of Bees of Paradise,
Does the work of Jesus Christ,
Does the work that no man can.
God made man and man made money,
God made bees and bees made honey;
God made great men to plough and to sow,
And God made little boys to tend the rooks and crows.
Hurra!'

Ants and Bees.—Sir John Lubbock read an interesting paper on ants and bees at the Biology Section of the British Association at Aberdeen. The correspondent of the *Daily News* writes:—'Sir John does not increase our respect for the creature to whose wisdom the sluggard has been commended. In the elementary conditions of sobriety and uprightness he has found the ant lamentably wanting, inasmuch as he does not know his way home. A French observer has come to a different conclusion with regard to bees, but Sir John could not give these insects any more credit than the ants. After taking many of them a certain distance, he found that only a third of the subjects of his experiment found their way home, and and that after such long intervals as proved that they certainly had not come in a bee line, and were without that homing instinct which distinguishes some other individuals of the animal creation. Sir John Lubbock, however, gives to ants the credit of a remarkable power of identifying their friends, and he does not find that long periods of separation, intoxication, or even immersion in water, with the view of destroying scent, can deprive these insects of this remarkable attribute. As to the longevity of ants, Sir John himself can vouch for the age of two which have been in his possession since 1874.'

Importation of Honey.—We understand that the *Pembroke Castle*, of Swansea, is bound to Liverpool from Valparaiso with 140 tons of honey, at 35*s.* per ton freight.

Echoes from the Hives.

Hollingbourne, Maidstone, Kent.—I was surprised on the 1st of this month by a strong swarm of bees from one of my hives. I was not at home until the evening of that day, but my gardener hived them. He was not expecting, of course, a swarm at this time of the year, and, not watching, therefore is not sure from which hive the swarm issued. The next day they issued from their hive, and alighted on a rose-tree close by. I secured the swarm, and at once united it to one of my stocks. There were apparently no drones in this swarm. One of the directors of the North Western Railway told me lately of a very curious case which took place this summer in connexion with bees. A swarm of bees alighted on one of the carriages of a passing train about three miles on the other side of Chester, and took a drive into Chester, where it was safely hived.—J. F. L.

Grange Road, Southwark, August 27th, 1885.—I set up a cottager's hive last October. I have a good-sized garden; this is a neighbourhood of factories, and I have an India-rubber one next door. It is a district of 84,000 inhabitants. There are, however, numerous small gardens about, and Southwark Park, with a variety of flowers, a mile off. My bees were fed (according to the rule) till May. They are exceedingly healthy and large. I had no encouragement offered to keep them, and that I should get any honey was deemed by many as very dubious; or that it would be so smoky as not to be eatable. The result, however, I take to be very successful. The eighteen sections were all filled, and with one exception all sealed. The colour of the comb is not that bright yellow or white, that we see in the country, but not darker than some I have seen in one of the most reputable West End grocer's store. The honey is most palatable, with perhaps a greenish hue as compared to some, owing, as I presume, to the nature of the food.—John Eastly.

Bishop's Waltham, Hants, Aug. 28th, 1885.—With us the honey harvest of the year is finished, or at any rate, in nearly the whole of the district it is over. There are one or two favoured spots where the bees are still working, but they are drowsy, and a good many must be lost while out, as I have found near my apiary many unable to fly. I have had a very successful year, and after I have finished up and put my hives in order for the winter, I will, with your kind permission, give all particulars for the encouragement of any one else who may wish to begin bee-keeping, as I myself did this year.—A Hampshire Bee-Keeper.

Duffield, Derby, September 3rd, 1885.—When you publish list of honey returns for this season, you may if you like include mine. From five hives (two hybrids, three

blacks), have had 300 lbs. of honey, with the exception of about 40 lbs., extracted from shallow frame supers; also had two swarms.—H. T. Bland.

Post Office, Llanfarian, Aberystwyth, September 2nd.—It is only a fortnight ago I happened to see your *Journal*, and I was surprised to read of the success that follows the new method of treating bees. My father and mother have been keeping bees for thirty-five years, and always *killing* them with sulphur; and when I think of it now, I say, What a pity and loss it was to do so! I have five skeps this year, and I intend to unite two of them in a bar-frame hive which I have made; and I am giving the old combs from the skeps in the frames, and tie them. Am I doing right? [Yes.] I intend to inform you of my success or non-success in bee-keeping. There is nobody in this county, Cardiganshire, doing anything with the bees on the new method, but there are a great many keeping them.—John Morris Jones.

Clapham Apiary, Penmaenmawr.—The past season has been altogether too dry and unfavourable for honey gathering. I put supers on several hives, but in no case did I succeed, and in one only was any work attempted towards filling sections. In this case two out of twenty-one lb. sections were filled, these being the only two lb. in them all through the season. Every hive I took up had a large quantity of empty comb, and altogether I have but about one-third I expected. I hope for a better season next year.—E. Owen.

Clonoughlis, Straffan, Co. Kildare, September 7th.—This has been a splendid honey season. We commenced the spring with eight hives, and have taken more than 600 1-lb. sections, or an average of more than seventy-five sections per stock, besides extracting nearly 100 lbs. and increasing to twelve stocks, which are all on nine or ten frames well filled with honey. One stock, which only covered five frames on the 22nd of April, gave ninety-six sections, another gave eighty-five, and a swarm from the same gave forty-one sections. None of the hives were doubled, and were mostly on nine frames throughout the season. Our honey harvest closed about the middle of July.—William T. Read.

Fort Etna, Limerick.—You may be glad to hear that this has been a good year here. I have got about 40 lbs. sections and 20 lbs. extracted honey from each of my stocks, eight in number; others have done well too.—R. White.

NOTICES TO CORRESPONDENTS & INQUIRERS.

G. H. Gadd.—*Observatory Hives.*—A single frame observatory is not a proper one to exhibit bees in and would rightly be disqualified. An observatory hive is one in which bees and their queens can live and work in during the whole season and one with less than three frames is not considered suitable for this purpose. A single frame observatory is only part of a hive and does not comply with the above condition. The schedule does not state that the bees were to be pure English, and with so many Ligurian and other bees about it is very difficult to find them perfectly pure. If the committee intended only *pure* bees to have been shown it should have been so stated in the schedule. The judges have nothing to do with the late arrival of the exhibits, but have merely to judge what they find staged in the different classes. We strongly object to rules being broken, and think that exhibits delivered at the show too late should not be staged until after the judges had been round and made their awards.

A. W. Wallace, M.D.—*Mr. Cowan's Hives.*—The hives have not all been extracted yet, but at the end of the season, when the bees are ready for winter, we will give the amount of produce obtained.

Irish Novice.—The sample of honey has been received. It is excellent in quality and delightful in flavour. We will take up the question of inverted skeps in a future number. It may require illustrations which we have not had time to prepare.

R. E. C.—*Difficulty in Extracting.*—In the absence of beather we are at a loss to account for your inability to extract your honey. Compare notes with your neighbours. Perhaps there is some honey other than heather obtained in your locality which gives the peculiarity to yours. Perhaps a hint may be gathered from the letter on 'Extraction of Thick Honey,' p. 299.

J. Peacock.—*Purifying Wax.*—Prolonged boiling is of no use; indeed, it spoils the colour by causing the colouring matter of the impurities to be absorbed. The sample you send appears also to be burnt. The great thing is to keep the wax at a melting temperature by surrounding the vessel with non-conducting substances large enough for the dreg to settle by its own weight, and when cold, scraping it off.

M. W. Moggridge.—*Utilization of Condemned Bees.*—Those placed on foundation on August 5th and well fed, should, and most likely will, form a good stock. To get foundation drawn out by existing stocks, place the sheets in the middle with combs between them, and feed liberally. As they are drawn out remove the outside combs to give to the condemned bees, and give other sheets in the middle again. If you cannot get enough ready, give the condemned bees alternate combs and sheets of foundation. Use two lots united to furnish bees for one stock. You would find seed of Limnanthes more useful to distribute than that of Melilotus, which was tried several years ago, but soon went out of favour.

G. J. Dunn.—*Gingerbeer Plant.*—Please refer to Vol. XII., p. 311, for a description of this plant.

Mrs. J. Conway.—*Honey Failure.*—Probably the colonies in your frame-hives were not so populous as those of your neighbours. Skill is required to bring up the population to the highest point by the time honey-flow sets in. This can only be achieved by judicious feeding, slowly stimulating, and by keeping young and prolific queens at the head of each colony. By working an apiary entirely for extracted honey a much larger yield may be obtained than by working it for comb-honey. Had you extracted the honey from your frame-hives several times during the summer you would, in all likelihood, have obtained more swarms, since the queens would have enjoyed more breeding space and would have produced more bees. We advise you to extract the outside combs of your hives. There is still time for this. See 'Useful Hints' in our last issue. During fine weather bees may be driven from skeps up to the end of this month, care being taken to guard against robbing. We hope you will succeed better another season.

Busy Bee.—*Contracting Hives.*—The advantage of confining the bees during the winter months to as many combs *only* as they can well cover, is that the interior of the hive is kept at a higher temperature, the bees consume less food, dysentery is generally avoided, and bee-life saved. The contraries of these advantages will generally be found to occur where a large amount of unoccupied space is allowed in a hive. In the latter case the bees cluster on the central combs, and a circulation of cold air continually surrounds them; hence, in order to preserve life, they are compelled to consume large quantities of heat-producing food—honey—the abdomen becomes distended from retained fæces, and dysentery, and finally death, ensues. In moderate-sized skeps the bees cover all the combs if the colony is a strong one; and the shape of the skep is well adapted to that of the cluster, both being circular, so that there are no corners filled with cold air

to contend against. If you winter on six or seven frames two-thirds full of sealed honey you need not fear starvation. The enamel-sheet must be removed, and winter quilts, cushions, or felt, must take its place.

B. L.—*Syrup-feeding.*—We always use syrup made after Mr. Cowan's recipe for autumn feeding,—viz., five pounds of sugar to a quart of water, and find it answers well. It should be brought to the boiling-point and allowed to boil gently for two or three minutes. Dry sugar feeding is highly spoken of by many who have tried it. The queen-cell is probably an old construction. Interview the queen.

V. G., *Thames Valley.—Reducing number of Stocks.*—We should do it now. Take all the outside combs, which will be most likely full of honey; give all the brood existing in two stocks to the united one.

W. J. B.—*Brood, but no Queen Visible.*—As your transferred stock contained hatching brood there certainly had been a queen within twenty-one days, and you no doubt overlooked her. Now you have the bees in bar-frame hives you can more easily find her. You would not be likely to find young brood in a skep at this season, except under exceptional circumstances.

E. Owen.—1. *Recovering Wax from Combs.*—You will find several hints in back numbers of the *Journal;* but, shortly, proceed thus: As you have but a small quantity tie it in a bag with a weight to sink it and boil, pressing the bag against the bottom or sides of the boiling vessel until no more rises. Let it cool, take the cake of wax, and scrape the dross from the under side, re-melt in a deep vessel with a little water and put aside in a warm place well wrapped up to settle again. 2. *Mead.*—Numerous directions for making mead will be found by consulting the indices of previous volumes of the *Journal.*

Flying Dutchman.—1. *Foundation.*—According to the rough-and-ready tests that we have to hand we should say your foundation is a very fair sample of bees-wax. Foundation has been very brittle this summer, we have heard many complaints. It should always be kept in about 60° Fahr., if possible, and should be held before the fire or in warm sunshine before being fixed into frames; we have used far more brittle samples after this treatment. 2. *Queens laying.*—Our advice is, do not stimulate now, but let them rest: close them up for winter with abundance, mark—abundance of stores, not a narrow margin above starvation, and you will find they will commence laying very early indeed, especially as the queens are young. Confine them to as little room as possible, in spring, but let them feel always they have abundance of stores, and by judicious spreading brood you will get far more vigorous stocks, than by breeding now.

B.—*Weak v. Strong Colonies.*—Your question scarcely requires an answer, the fact, both in practice and theory, that one *strong—i.e.*, populous colony—is of far more value than two (half-a-dozen?) *weak* ones, is well established. Unite two colonies, removing the old, or worthless queens, and reserving the young prolific ones, thus reducing your number to half. A colony should go into winter quarters with at least 18,000 or 20,000 bees—in weight from three to four pounds. Not more than half of these will survive the winter, as spring workers. No doubt small colonies of *young* bees may be wintered successfully by close, warm packing, &c. And if your object be the sale of bees and queens, it may be worth trying, but if you work for honey remember Oettl's golden rule, '*Keep none but strong colonies,*' a world-wide and most excellent maxim. Colonies, at present weak in numbers, with young and vigorous queens at their head, may by judicious feeding and management, during this month, be brought up to the standard of strong colonies. As you speak of 'rational bee-keeping,' allow us to refer you to Dzierzon's *Rational Bee-keeping,* pp. 142 and 233, where you will find good advice on the points you suggest as queries. Mr. Langstroth also writes very strongly in favour of strong colonies. If unacquainted with these authors, you cannot do better than consult them. All localities are alike as regards the strength of colonies.

J. Chapman.—*Unable to Drive.*—Queenlessness was the cause of your bees refusing to run. As a rule queenless bees are difficult to drive. The large number of drones at this season points to queenlessness, which is the state of many hives that have cast swarms, the young queens having been lost on the wedding flight.

T. Badcock.—*Bees deserting Hive.*—Your bees deserted because they were queenless. Either you failed to drive out the queen with the bees, or there was no queen in the hive. She might have been killed during the operation of driving. If, however, the queen was with the driven bees, the only other cause of desertion was, probably, an attack by robbers on the following morning. Under these circumstances driven bees quickly desert a hive. From your description, we do not think the case one of foul-brood. If you have any doubt, send a piece of the brood with comb to Mr. Cheshire, who will examine it and report. Your treatment of the other two colonies is correct. Keep the entrance about an inch wide, and feed freely at evening, being careful to cover the feeder, to prevent robbing.

Beginner.—*Removing Super.*—The difficulty in removing your super arose from the large quantity of propolis used by the bees. This was probably caused by an ill-fitting case. A heated knife passed round between the case and frames, without jarring or shaking, gentle raising of the super at back, with free injection of smoke, would have obviated all difficulty. 'Force,' which means rough handling and shaking, should never be used. No wonder the bees were killed! The bees perished outside the quilt from cold and being unable to find their way back. Supers should be removed in fine, warm weather—never on a cold day. A practical lesson on manipulation from a qualified expert is the best course we can suggest. With gentle handling, and a moderate use of smoke, there should be no loss of a single bee. Stinging is death to the bee.

H. W. D.—*Foundation, Winter-packing, &c.*—1. The weather has been too cold of late for bees to draw out foundation freely. On a return of warmer weather, strong colonies, with copious feeding, will draw out foundation into perfect combs as late as till the middle of next month. This, however, is not desirable, as such colonies never winter well. If the hives are populous, place a sheet of foundation in the brood-nest, and continue to feed. 2. Winter passages may be cut with little disturbance to the bees, by each comb being held by an assistant, while the operator applies carbolic solution on a feather to the spot, and with a long sharp penknife removes a circular piece of comb. We do it ourselves without any help, by resting one end of the frame on the cover of the hive. 3. When preparing hives for winter, we prefer to leave the combs at their proper distance. In the brood-nest sufficient space for clustering is always found. Two thicknesses of flannel should be placed beneath the bottomless box. On the box may be tacked a piece of canvas, as a bottom, for holding the chaff or sawdust. 4. On a cool evening, close the entrances of your hives, and move them at once, with as little shaking as possible, to their new position. When placed, open the entrances. Disguise the old

standing-places, by laying down a few bushes around them. Place a board in front of each hive in its new position, to cause the bees to mark the spot when taking their first flight. You will lose a few bees; but if moved in cold, wet weather, like that we are now experiencing, the loss will be trifling. 5. Yes. You may push the frames to the back of the hive, and place a moveable side in front of them, forming thus a porch at the entrance.

J. F. L.—The two pieces of comb forwarded were infected with foul brood.

J. PURVIS.—The idea of the reversible frame took its origin in America. It may have undergone some modification at the hands of the bee-keepers mentioned in your letter.

JOHN GRANT.—*Bees Robbing.*—At this season when stocks are strong and no honey to be had, they are on the alert to seize upon every badly defended store. Reduce the entrances, so that not more than two bees can pass, and see that robbers cannot enter under the roof, or by any other way. Carbolic acid is said to prevent robbing if sprinkled on the part of the hive robbed.

IGNORAMUS. — 1. *Wintering Bees.* — Six frames are enough for most stocks, but you must judge by the strength. Leave as many as the bees can well cover. 2. If winter passages are made, slips of wood are not required across the tops of the frames; of the two plans, winter passages are generally preferred. One hole, about an inch across in each comb, about two inches from the top is sufficient. 3. *Driven Bees.*—While you gave them their own combs in their skep on the top of the hive containing sheets of foundation, it was only to be expected that they would desert the latter for the former. The queen could not join them by reason of the excluder, and so you found her alone among the sheets of foundation accompanied only by a few attendants. You should have cut the combs out of the skep and tied them into the frames. 4. Calico is not a good covering for the frames. Use strong 'Ticking.'

WOOD BUILDING.—1. You may utilise the building as you propose, facing the longest side to the S.E. or S. and keeping the door at the back facing N. The south side will admit of two shelves, on which to place your hives—four on each shelf—at equal distances from each other. The lower shelf should be about one foot from the ground, and the other so placed as to admit a hive with super on each shelf. A house of these dimensions—16ft. × 6ft. × 6ft.—will not take more than eight hives. Ten might be crowded in—five on each shelf—but the chances of losing young queens on their wedding flights, and robbing, would be greater. 2. Remove the thin honey, floating on the top of your vessel, by skimming. Wood, tin, or strong glazed earthenware utensils, are best for the storage of honey. It keeps well in strong 1 lb. bottles, carefully sealed, and is then ready for immediate sale. After honey is set, *i.e.* crystallised, it can only be bottled when liquefied by heat. The heat applied should not be greater than 190° Fahr. 3. The quantity of syrup supplied per diem depends upon circumstances. If intended for winter store give it warm, in the evening, as much as the bees will carry down. A strong colony will dispose of a quart a-day, or more. The enclosed specimen of enamel-cloth will answer well, but it must not be used for wintering. See 'Useful Hints.'

*** *Several inquiries respecting queens and foul brood have been forwarded to Mr. Cheshire, which will be attended to on his return home, and the replies forwarded to the correspondents.*

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THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

[No. 179. VOL. XIII.] OCTOBER 1, 1885. [PUBLISHED FORTNIGHTLY.]

Editorial, Notices, &c.

PEEL MEMORIAL FUND.

The Committee of the British Bee-keepers' Association, immediately after the death of the Rev. H. R. Peel, passed a resolution inviting bee-keepers to subscribe for the purpose of raising a fund which would be a suitable memorial of Mr. Peel's great work in the interests of apiculture.

The Committee hope that all bee-keepers will contribute something, however small may be the amount in some cases, in order that the memorial may be a really national one.

The Committee have decided that the fund thus raised shall be invested in the names of trustees, and that the annual income shall be paid over to the Committee of the B. B. K. A. for the time being, to be administered by them as they may from year to year decide, but solely for the encouragement of bee-keeping amongst the labourers and cottagers of the United Kingdom.

For the collection to the fund the Committee desire to make use of the machinery of the county associations (a machinery called into existence by Mr. Peel himself); and they request the co-operation of county secretaries. All who wish to contribute, and by doing so show their grateful sense of Mr. Peel's work, and assist in keeping it in lasting memory, are requested promptly to forward their names, with the sums subscribed, either to their county secretary or to Mr. J. Huckle, Kings Langley, R. S. O., Herts.

N.B.—No further application will be made, and after a sufficient interval for the collection of the fund, it will be closed. Subscriptions should therefore be forwarded without delay.

Bee-keepers and others who are desirous of assisting the fund, may obtain copies of the appeal for distribution upon application to Mr. J. Huckle at the above address. The fund at present amounts to upwards of 80*l*.

THE TREATMENT OF CONDEMNED BEES.

The disappointment frequently experienced from stocks which have been made up in autumn from condemned bees failing and dying out in spring arises from disregarding the condition in which the bees were when taken and the necessity of restoring them so far as possible to the same condition in their new position. A careful consideration of the natural state of bees in a skep at this season will be our best guide to our future treatment of them. We find the honey harvest over, breeding at an end, the outside combs filled with sealed honey, while the centre ones are only partially filled, so that plenty of empty cells exist into which the bees can pack themselves. The bees which we drive out of these comfortable quarters have already taken their share of work in preparing their hive for the winter, but are still strong and vigorous.

If we take these bees and hive them in a bar-frame hive furnished with foundation, they have to make their winter arrangements afresh. They have to draw out the foundation, very often in weather too cold for the operation, to store food, evaporate it down and seal it. All this labour imposed upon the bees, which under ordinary conditions would have had no work to do until the spring, so impairs their vital energy that they are prone to fall victims to cold, long confinement by frost, slight damp, or, above all, the labour of brood-rearing in the spring, so that instead of increasing at that season they rapidly dwindle away.

Now if, instead of giving them all this work to do, we place them in the same state in which we found them, so far as we can, we shall find a very different state of things existing in the spring. The bees will be strong, and, as we have made up large colonies, brood-rearing can be carried on rapidly.

To place them in this happy condition we must give them no work to do. We must give them ready-built combs already stored as to the outside ones, leaving them only to arrange their nest to their own liking. If we are only about to get a few stocks, the combs removed from our frame-hives, when crowding the bees for winter, will be sufficient to furnish hives for them; but if we expect to take many lots, we must provide combs specially for them by setting our bees to work early in the year to draw out foundation and store it. By placing sheets of foundation in the middle of the hive and feeding liberally, removing the outside combs as they are sealed, one stock can furnish several stored combs. Mr. Cowan's plan of artificially heating a hive is very useful for this purpose.

When taking the bees always secure young queens by keeping those of stocks and casts, and destroying those of first swarms, which will necessarily be old ones. Keep the bees confined as short a time as possible before hiving them.

The weight of bees obtained from a skep averages from 1½ lbs. to 2 lbs. We have carefully noted the result of some 160 skeps taken this autumn, and find that four lots united weigh from 6 to 8 lbs., very few reaching 9 lbs.

Each pound weight of bees will require one comb (standard frame) to cluster upon.

To make a good stock which is likely to give good results, make up your hive with four or five combs built and stored, and place in the centre two combs built but not stored, or only stored partly down. Arrange the hive with the quilt and division-board, place a large board sloping up to the entrance, and hive the bees by throwing them upon this board. This is better than placing them among the combs or behind them, as, being naturally a bit heated from confinement, they cool down while running in, whereas, if placed in the hive, they will often 'boil over' and cluster outside or in the roof, giving some trouble to get them in. If you have not united before bringing home, do so by throwing as many as you wish to unite on the boards as they run in. They will unite readily without fighting. Give each hive of seven combs the contents of four skeps, or three if very good. Have your smoker lighted ready, and gently direct a stream of smoke on any large clusters which form, and so drive them into the hive. Hive in the evening, but not after dark, when bees crawl about and sting more than is pleasant. Up to seven at end of August, but not later than six at end of September, will be a good time. Do not attempt to hive driven bees in the morning; they will fly about, and, not knowing their home, try to enter other hives, and put the whole apiary in an uproar. If hived in the evening they will settle down by morning. Having hived them, give each lot 6 lbs. of thick syrup with which to furnish the centre combs around the nest. If, on examining them after two or three days, you find there are more bees than can find room on the combs, so that they are clustered on the division-board, give one more comb.

If you do not obtain enough to make up a hive as directed, it would be better to utilise them for strengthening existing stocks rather than for making up fresh ones. Two lots united, if good ones, may succeed, but we prefer at least 6 lbs. weight of bees.

When they have taken the 6 lbs. of syrup pack them for the winter by pushing all the combs to the back of the hive, placing the division-board in front of them, cutting an entrance along the bottom of it, thus forming an ante-chamber, so that the wind does not enter the hive proper. Place the winter chaff-cushion on the frames, and leave them alone in confidence that they will give you good results next year.

FREE TRADE IN HONEY.

As was confidently predicted some time ago, there has been a considerable fall in the price of honey. Many causes have contributed to this, and amongst the most important are, the increased knowledge in bee-keeping, the cheapness of jam, and foreign competition.

Bee-keeping now is pursued by many, not as a hobby or amusement, but as a livelihood, and the large quantities of honey exhibited at the various bee-shows prove conclusively that there has been a great progress in this particular industry. With the increased production there has followed, as a necessity, a corresponding decrease in the price. Supply and demand are mutually dependent on each other. A good harvest means low prices, unless there is an increased demand. Take, for instance, the meat trade. Notwithstanding the enormous quantities of foreign meat imported into this country, there has not been that fall in English-grown meat which so many expected, for the simple reason that the consumption has been so much greater, and so many of the labouring classes, who some thirty years ago hardly tasted fresh meat more than once or twice a-week, are now in the habit of using it once a-day, if not oftener. If there had been the restrictive laws, which the farmers demanded, against this importation, they as a class would have benefited, but at the expense of the general community. As has been well observed, people do not starve in the midst of plenty, and so low prices of food mean the welfare of the many.

Of late years we have heard several complaints of the iniquities of the French bounty system, and that the sugar-refining industry of this country, as well as the production of sugar in British dependencies, was being carried on, but only at a loss.

So long as the French people are content to partly pay for the sugar we use—for that is the effect of the bounty system—we, as a nation, need not grumble, though a certain portion of the community are injuriously affected.

But the result has been to direct the trade into other channels, and the production of jam has been enormously increased owing to the cheapness of sugar, and as a consequence cheap jam has had the effect of lowering the price of honey.

In the last edition of the *Journal* there is a statement that there are 140 tons of foreign honey consigned to Liverpool; and it has been suggested that the only way to neutralize this is by putting an import duty on foreign honey, so as to protect the struggling British bee-keeper.

The question of how the necessary revenue is to be raised for carrying on this great empire is, and must always be, a very difficult problem, and as indirect taxation does not press so hardly, or at all events so apparently, on the shoulders of the tax-payer, it has been the custom for ages past to tax tea, sugar, &c., instead of adding another penny or so to the income-tax.

But the tendency has been to abolish or lessen all duties on commodities, and the 'Free Breakfast Table' will most probably in a few years be an accomplished fact. Whether a free luncheon table (beer, wine, &c.), and a free smoking-room table, will also follow in due course, is not so certain.

Hence, we do not think there is any chance of an

import duty on honey; nor do we regret this. If the foreigner can send us honey, with all the cost of freight from where it is produced, and the various charges, commissions, &c., of as good quality as we can produce in Great Britain, the imposition of even a small duty, would be at the expense of the general community, and in favour of the comparatively few bee-keepers.

Admitting for the sake of argument, though we do not believe it, that pure Californian honey, guileless of glucose, is equal in flavour to British honey, what would be the natural result of such competition? In the first place, it would reduce the price of home-produced honey, but the more important result would be the economy in bee-keeping, the natural result of keen competition.

If our bee-keepers cannot produce honey on the spot to compete with foreign honey, and still return a good interest on their outlay, no protection duties will be of any avail, and the crash would come sooner or later. We have no fear for British bee-keeping so long as we continue to hear of the large harvests from hives properly managed. Those bee-keepers, who keep bees on commercial principles, will have to select favourable localities, if they wish to make bee-keeping pay; and if they do not, they will only have themselves to blame.

USEFUL HINTS.

In apiaries which have been treated according to our suggestions made in the last issue there will be little work left incomplete, as regards winter preparations. When mentioning our own practice of placing a flat straw cover, or crown-board, upon the quilt, or felt, we omitted reference to the 'chaff-box,' used largely by many of our most successful apiarists. Where section-cases, fitting the hives, are in store, they may be utilised for the purpose of chaff-boxes by tacking a piece of course canvas on the lower side, and filling up with chaff or cork-dust. A sheet of unbleached calico is placed over the frames, then felt, and, lastly, the chaff-box upon it. The roof over this is all that is required. September has been a cold, wet month, with, however, some bright days; and most colonies will go into winter quarters strong and healthy, with abundance of stores. In many of our hives, breeding, to a moderate extent, is still carried on. Weather prophets, in consequence of the long prevalence of north and east winds, are predicting a mild winter. Ancient seers, from the abundance of hedge-fruit, would have forecast a long, severe winter.

Feeding, in many cases, has been delayed owing to the cold winds and frosty nights preventing the bees from storing syrup. Inside feeding is desirable now, or at all events the use of feeders which receive and retain the heat of the hive when placed over the brood-nest. Again we say, 'Let feeding be completed as speedily as possible.'

Sections and frames of comb will pay for the trouble of wrapping up separately in paper, and storing in a dry room. All propolis should be scraped off before storing these; they will then be ready for use another season.

Hives with frames parallel to the entrance —commonly called *warm frames*— should have their frames pushed up to the back, and a division-board, or moveable side, placed in front, thus forming a portico excluding the direct entrance of wind, snow, or rain. In this board an entrance of 6 in. wide by $\frac{1}{4}$ in. deep should be cut. This last is important.

Manipulations of hives must now be practised sparingly. Where necessity demands, it should be performed about mid-day, in fine weather only, and as quietly and quickly as possible, avoiding all disturbance by jarring or hasty and rough handling. 'Successful wintering is one great secret of success;' indeed, without it there is no possibility of acting up to the golden rule of 'keeping all colonies strong.'

Preparations for moving hives where deemed desirable may now be made. The end of this month, or throughout November, during cold weather, is, perhaps, the best period of the year for moving hives to new locations. We prefer a south-easterly aspect with the ground gently sloping to the front. If the site is on grass, it must be kept neatly mown, and a little sand, or finely-sifted ashes, should be scattered around the hives.

The Quincunx is the best arrangement for placing hives. This word—derived from *quinque uncia*, the fraction $\frac{5}{12}$—was anciently used to denote a grouping by fives, as in the manner of marking dice, or the five on cards, thus:—

. . .
. .
. . .

it is used by Cicero, who recommends the planting of trees in this order; and by Cæsar, who applied it to the formation of troops. Professor Phin, an American writer on apiculture, describes the Quincunx thus: 'This word is derived from the five marks on a five-ounce weight, and signifies an arrangement by fives, this being the least number that will exhibit the system, the special feature of which is that the objects stand in straight rows in four different directions. If it be desired to get the greatest number of plants on a given area, and still keep them at the greatest possible distance apart from each other in every direction, the quincunx system enables us to do it. The hives may be arranged as in the accompanying figure,

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where it will be seen that they form rows, the hives in the alternate rows "breaking joint" with those in the others, and the rows being placed at such a distance apart that the distances between any hive and those standing around it are all equal. The quincunx arrangement is strongly recommended for the hives in an apiary, and it serves admirably. It has been sometimes improperly called the *hexagonal arrangement* from the fact that each hive is surrounded by six others, all at equal distances from it and from each other. The system is a very old one, and it would be a pity to introduce a new and inaccurate name for it.' The quincunx system is invariably used by our bees in building their combs. The comb is built with cells on both sides, the division between

the ends of the cells being called the *septum*, and serving as a bottom for both series of cells, thus saving wax. The cells are not placed exactly opposite each other, but the centres of the bottoms are arranged *quincunx* fashion. So wise by instinct are our little pets, the bees, in economising space and strengthening their combs. What a lesson do they teach us, their *masters* (?)! Assuredly 'there are more things in heaven and earth than are dreamt of in our philosophy!'

BLIGH COMPETITION, 1884-5.

The Committee of the Bligh Competition regret that they have not been able to complete their decision and report for insertion in this issue; but our readers may confidently expect to see it in our next.

ROYAL DUBLIN SOCIETY DAIRY SHOW.

This Society will hold its annual show on Wednesday, October 15th, and two following days, at Ball's Bridge, Dublin, when several prizes, consisting of money and medals, will be offered jointly by the Royal Dublin Society and the Irish Bee-keepers' Association for honey, hives, honey extractors, and bee-driving. We hope that this show, though the last of the season, may not be the least successful among the many exhibitions that have been held this season, and that it may be largely supported, not only by bee-keepers in Ireland, but also by many from this country.

MR. BLOW'S MISSION TO CARNIOLA.

Mr. Thomas B. Blow, who, it will be remembered, went some years ago to Cyprus, Syria, and the East to investigate the merits of the races of bees, has started on a similar mission to Carniola and the various countries on the eastern coast of the Adriatic Sea. He will, on his return journey, visit several queen-raising apiaries in Italy, and we expect to be able to publish a series of articles giving an account of his labours.

EXHIBITION CARDS.

We are informed that the Cheshire Committee, acting under Rule 5 of their Schedule, passed a resolution prohibiting prize cards won at previous shows being placed on the various exhibits at the Altrincham show. We heartily commend the resolution. This practice is most objectionable, and very misleading to visitors, more especially when placed upon exhibits of honey. Where no catalogue is printed, we consider it to be the duty of every committee to provide exhibition cards giving the name and address of the exhibitor, such cards being placed on every exhibit for the information of the visitors and to the benefit of the exhibitor.

DEATH'S-HEAD HAWK MOTH.

(*Acherontia atropos.*)

Since our last issue we have received several communications respecting the death's-head moth, or, as it is more correctly styled, the death's-head hawk moth. One correspondent has forwarded some very carefully executed drawings of the skeleton of one which he found at the bottom of a skep, for which we beg to return him our sincere thanks. Another correspondent has sent us the insect itself, which had been found at the back of the dummy, inquiring whether it was a wax-moth, and whether it was injurious to the bees. Our replies to these inquiries would be beyond the usual limits, and therefore we have cast our remarks more into the form of an article. We have frequently received either the skeletons or the insects from other correspondents, and therefore we may conclude that these death's-head moths are not unfrequent visitants of bee-hives, and therefore that bee-keepers would take an interest in a description of them.

The death's-head moth is a species of hawk moth, a lepidopterous insect of the family of the *Springidæ*. It is frequently to be met with in some parts of England and of the Continent, and it is very widely distributed over the world, being found in Africa, the Mauritius, and the East Indies. It measures almost five inches from tip to tip of the wings when extended. It must therefore be considered not only as the largest of our indigenous Lepidoptera, but, with the exception of the Peacock-moth, the largest insect inhabiting Europe. It is of a dark colour, the body yellow with dark markings, the thorax with pale markings, which bear some resemblance to a skull, from which it derives its name; the upper wings mottled with brown, black, and yellow. The caterpillar, which is sometimes five inches in length, is greenish yellow, the back speckled with black, with transverse lines partly blue and partly white. In countries where the potato is cultivated it is often to be found feeding on the leaves of that plant. The caterpillars are generally full-grown about the middle of August. The moth seldom appears before the end of September; it conceals itself in some obscure place during the day, and is to be seen flying about only in the mornings and evenings.

The presence of this death's-head moth has in some countries produced the most violent alarm and trepidation amongst the people, who, from the peculiar sound it emits and the appearance of what seems like a death's head upon its back, have regarded it as the messenger of pestilence and death; while in the Mauritius a notion prevails that it casts from its wings a dust which produces blindness in the persons on which it falls, and therefore its entrance into an apartment is regarded with dread.

Kuhn informs us that in the year 1799 some monks, who kept bees, observing that they were making an unusual noise, lifted up the hive, when an animal flew out, which at first they took to be a bat, but which proved to be a death's-head moth; and he states that several years before some had been found dead in the bee-hives. M. Huber also, in 1804, noted that the death's-head moth was in the habit of entering his hives, and regaling itself on honey. It is not to be surprised at that it should be attracted by the smell of honey, as most lepidopterous insects show a predilection for that kind of food; but it is difficult to understand how a creature without offensive weapon, and unprotected by any hard covering, can manage to elude or resist the attacks of their well-armed assailants. This difficulty is increased when we consider the result of one of M. Huber's experiments. He intro-

duced a death's-head moth into a box containing a colony of humble bees; it was immediately attacked, and so severely stung that it died very soon after.

Kirby and Spence, when speaking of the impunity with which this animal commits its depredations in hives, seem to think that the peculiar sharp, shrill, and mournful cry which it emits affects and disarms the bees, so as to permit it to continue its spoliations. Huber also seems to be of the same opinion. One of these insects having been brought before a learned divine, who was also an entomologist when he was unwell, was so moved by its plaintive cry, that instead of devoting it to destruction he gave it its life and liberty.

There is no doubt that the death's head moth is one of the enemies of the bees; and we can well imagine their consternation at the advent of so strange a visitant. Huber gives an account of the manner in which the bees of some of his neighbours protected themselves against the attacks of the moth; they so closed the entrance of the hive with walls, arcades, casemates, and bastions, built of a mixture of wax and propolis, that these insidious maranders could no longer intrude themselves. This is a singular instance of the superposition of reason on instinct by the bees, as it would appear from the statement of Huber that it was not until the hives had been repeatedly attacked and robbed of nearly their whole stock of honey that the bees betook themselves to the plan thus adopted of barricading the entrance, and so securing the remainder of their treasures.

Though these insects are not desirable visitants to our hives we do not apprehend any great damage ensuing to the bees from the death's-head moth in this country.

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee Meeting held at 105 Jermyn Street on Wednesday, September 16th. Present—The Hon. and Rev. H. Bligh (in the chair); Rev. Dr. Bartrum, Rev. F. S. Sclater, the Rev. G. Raynor, Captain Bush, Captain Campbell, G. Walker, H. Jonas, J. M. Hooker, W. O'B. Glennie (Treasurer), and the secretary. The minutes of the last meeting were read, confirmed, and signed.

The Secretary reported that he had communicated with the authorities at South Kensington in reference to the Exhibition of the Collection of Appliances presented to the Association by Mr. Cowan to be exhibited at the Bethnal Green Museum, but had not yet received a definite reply.

It was resolved that the Hon. and Rev. H. Bligh do superintend the arrangements in regard to the fund for raising a memorial to the late Rev. H. R. Peel.

The Prize Schedule for bees, hives, honey, &c. at the Royal Agricultural Show of 1886 was agreed upon; one or two extra classes were added; the most important alteration in the prize list being in regard to the chief hive class, to read as follows:—'For the best and most complete frame hive of a substantial character for general use in an apiary, with arrangements for summer and winter use, and capable of being used for doubling to obtain extracted honey, or of being storified with one or two crates filled with $4\frac{1}{2} \times 4\frac{1}{2} \times 2$ sections to obtain comb honey: price not to exceed 15*s.*, unpainted.'

DERBYSHIRE BEE-KEEPERS' ASSOCIATION.

In the Show Grounds of the Derbyshire Agricultural Society the above Association again held an extensive and interesting exhibition of bees, honey, and appliances in a tent on the Recreation Ground. The entries were larger than on any previous occasion, while the quality of the honey was particularly fine. The bee-driving competition in an adjoining tent was an attractive feature. The class for the best stock of bees was a capital one. The yellow-banded bees, which are natives of Italy, sent by Mr. Wilkes, of Church Broughton, were awarded the premier prize; the second place being assigned to the Syrian bees, belonging to Mr. Austin, of Alvaston, which are smaller in size, but more active than the insects which took the premier place. The honey exhibition, both as to quantity and quality, was the best ever held by the society, the competition, particularly in the extracted honey, being very strong. In the class for exhibits of super honey, whether sectional or otherwise, Mr. Williamson, of Osmaston-by-Ashbourn, had a collection weighing 214 lbs., while Mr. J. Gower, of Hucknall, near Mansfield, showed a glass super, containing 70 lbs. of honey in the comb, and Mr. S. Hawkins sent another glass super, which had in it 60 lbs. weight of honey. These exhibits carried off silver and bronze medals. In the cottagers' classes there was a good deal of rivalry. In the exhibits for honey in the comb, Mr. Foster, of Brailsford, sent 101 sections from one hive. One of the combs, in a super 16 lbs. in weight, belonging to Mr. Sadler, of Kirk Langley Common, measured through $3\frac{1}{2}$ inches, while a comb shown by another cottager measured $2\frac{3}{4}$ inches. The tent also contained a variety of appliances, hives, &c., and altogether the Association are to be congratulated upon their successful display. The judges were Mr. R. R. Godfrey, Grantham; Mr. Henry Goodall, St. Peter Street, Derby; and an expert from the British Bee-keepers' Association, the steward being Mr. F. Holbrook, Queen Street, Derby.

The following is the prize list:—

Bees.—Class 2. Best stock of bees.—1, W. Wilkes, Church Broughton; 2, Thomas Austin, Alvaston; 3, D. Cooper, Sunny Hill; 4, A. Cooper, Sunny Hill.

Honey.—Class 3. Largest and best exhibit of super honey.—1, R. Williamson, Osmaston-by-Ashbourn; 2, Thomas Austin. Class 4. Best twelve sections.—1, R. Williamson; 2, D. Cooper; 3, William Handby, Hasland. Class 5. Best honey in comb.—First prize, the British Bee-keepers' Association's Silver Medal, J. Gower, Hucknall; second prize, the Bronze Medal, S. Hawkins, Heage. Class 6. Best run honey.—1, J. Gower; 2, Thomas Austin; 3, A. Milner, jun., Stretton.

Bees-wax.—Class 8. For best wax.—1, Mrs. Foster, Brailsford; 2, D. Cooper.

Cottagers' Classes.—Class 9. Best honey in comb.—1, G. W. Foster, Brailsford; 2, James Rowland, Cliff; 3, T. W. Jones, Etwall; 4, D. Judge, Heage; h c, William Elliot, Clay Cross; W. Sadler, Kirk Langley. Class 10. Best run honey.—British Bee-keepers' Association's certificate and 10*s.*, A. Simpson, Mansfield Woodhouse; 2, T. W. Jones, Etwall, near Derby; 3, Henry Richardson, Shottle, near Derby; 4, Charles Fearn, Church Broughton; h c, G. W. Foster, Brailsford, near Derby.

Bees-wax.—Class 11. Best wax.—1, Thomas Wilson, Ashover, near Chesterfield; 2, S. Hadfield, Higham, near Derby.

Hives, &c.—Class 12. Best frame-hive, price not to exceed 10*s.* 6*d.*, first, certificate, William Handby, Hasland, near Chesterfield; 2, D. Cooper, Sunny Hill,

near Derby. Class 13. Best frame-hive, cost not to exceed 5*s.*, certificate and 10*s.*, first, Joseph White, Tupton, near Chesterfield; 2, G. W. Foster, Brailsford, near Derby. Class 14. Cheapest, neatest, and best super for harvesting honey, first, certificate, D. Cooper, Sunny Hill, Derby; second, certificate, W. Handby, Hasland, near Chesterfield. Class 15. Best collection of hives, and bee furniture, first, certificate, W. Handby, Hasland, near Chesterfield.

WARWICKSHIRE BEE-KEEPERS' ASSOCIATION.

The exhibition of bees and appliances, promoted by the Warwickshire Bee-keepers' Association, was held in connexion with the Warwickshire Agricultural Society. On the present occasion the number of exhibitors was very much in excess of any previous exhibition, and the lively interest manifested in the numerous paraphernalia appertaining to bees was pleasingly apparent. In addition to the increase in numbers, however, the exhibits were of a very high order of merit. Amongst the appliances were some capital displays by Messrs. Abbott, Bros., of Southall, London. This display consisted of numerous descriptions of hives for the keeping of bees of different species, supers and sections, machines for making comb-foundations for stock hives. Messrs. Abbott, in respect of appliances, took nearly all the leading prizes. A good show was made by Mr. W. P. Meadows, of Syston, near Leicester. This gantleman had a splendid collection of appliances, those claiming special attention being the syrup feeders and wax extractors. He was awarded several prizes. Mr. Thomson, of Birmingham, obtained the first prize for a 'Summerskill utility;' and as regarded run honey the premier award was given to Mr. W. Tyrer, of Stockton House, Stockton. This department attracted great attention by reason of its high type of quality, being very much in advance of anything of the kind ever previously shown for its purity and beauty. Mr. T. Sells, of Uffington, was placed at the head of the list in Class 13a. for a splendid super of honey of marvellous excellence, weighing upwards of sixty pounds. There was also an exceedingly fine exhibit of honey in the comb, sent in by Mr. John Walton, of Weston, who took a first prize; whilst Mr. Pridmore, of Hinckley, was equally successful with some of his contributions. The chief interest, however, was centred in the grand collection of Ligurian and other foreign bees and English bees. A distinct counter was appropriated for the sale of honey in the comb and in glass jars, and for disposal of bees-wax, smokers, feeders, gloves, and other small articles connected with bee-keeping. The completeness of the show and its arrangements was doubtless owing to the management of Mr. James Noble Bower, the hon. sec., who was untiring in his efforts to promote the success of the undertaking. The Committee also lent valuable aid. The Judges were the Rev. Dr. Bartrum, of Great Berkhamsted, and the Rev. J. E. Sale, of Chepstow, and their decisions were in every degree popular. Owing to the inclemency of the weather on the opening day, the manipulations, which were to have taken place on that day, had to be postponed until the Thursday, when some eminently successful competitions in bee-driving and other similar manipulations were held in a tent adjoining that in which the exhibition took place. Prior to the distribution of prizes, which was held subsequently, a lecture was delivered by Mr. Summerskill, the society's expert. A list of the awards is annexed:—

Bees.—Stock of Ligurians or other foreign bees, 1, J. Walton; 2, R. Bennett. Stock of English bees, 1, W. Tyrer, Stockton; 2, R. Blundell.

Hives.—Best and most complete frame-hive, 1, Abbott, Bros.; 2, T. B. Thomson; 3, A. T. Adams, Crick, near Rugby. Best and most complete frame-hive (for cottagers' use), price not to exceed 10*s.*, 1, A. T. Adams; 2, W. P. Meadows; 3, A. W. Rawlins, Stourbridge. Best frame-hive for general use—the work of an amateur or cottager, 1, W. Alliband, Hatton; 2, J. C. Walton, Weston.

Supers.—Neatest and best rack containing 1-lb. or 2-lb. sections, 1, T. B. Thompson; 2, Abbott, Bros. Best rack containing 1-lb. or 2-lb. sections, suitable for cottagers, 1, T. B. Thompson; 2, E. Field, Leamington.

Honey.—Exhibition of super honey from one apiary, 1, and Silver Medal, J. Walton, Weston, near Leamington; 2, W. S. Pridmore, Hinckley. Twenty-four 2-lb. sections of comb-honey, 1, J. Walton; 2, T. Sells; 3, W. Bennett, Shipston-on-Stour; extra prize, A. T. Adams. Twenty-four 1-lb. sections of comb honey, 1, T. Sells; 2, J. Walton; 3, W. Tyrer. Twelve 2-lb. sections of comb-honey, 1, W. Sells; 2, S. Dickens; 3, Mrs. Woodward. Twelve 1-lb. sections of comb-honey, 1, W. S. Pridmore; 2, W. Sells; 3, John Burman, Leamington. Exhibition of run or extracted honey not exceeding 50 lbs. in either 1-lb. or 2-lb. glass jars, 1, and Bronze Medal, W. Tyrer; 2, Miss S. Palmer, Hampton Lucy; 3, W. Sells; extra prize, T. Sells.

Cottagers' Class.—Twelve 2-lb. sections of comb-honey, 1, E. P. Walton, Saltley College; 2, R. Bennett. Twelve 1-lb. sections of comb-honey, 1, E. P. Walton; 2, R. Bennett; 3, G. Cooper, Coventry.

Miscellaneous.—Largest collection of hives and bee-furniture, 1, Abbott, Bros.; 2, W. P. Meadows. Sample of pure bees-wax, 1, A. T. Adams; 2, Abbott, Bros.

WINCHCOMBE AND SUDELEY FLOWER SHOW.

The Annual Exhibition of Flowers, Fruit, &c., was held on Wednesday August 26th, in the grounds adjoining Sudeley Castle, and was most successful, the weather being beautifully fine. The Gloucestershire Bee-Keepers' Association sent their bee-tent, in which illustrations of bee-driving were given during the afternoon, much interest was manifested, and the superiority of the new system was generally acknowledged. The Association were represented by Mr. C. Marshall, Jr. (Cheltenham), and Mr. C. N. White (Winchcombe), the former of whom acted as judge of the honey.

The following is the list of prize-winners.

Sections: 1, Lord Sudeley; 2, Mr. W. Smith. Best Supers: 1, Mr. W. T. Smith. Jars: 1, Mr. C. Staite; 2, W. T. Smith; 3, Lord Sudeley. Cottagers: Comb; 1, W. Harriss; 2, Tom Major. Jars: 1, W. Harriss; 2, Tom Major. For best flat-topped straw hive with super: 1, W. T. Smith.

CHESHIRE ASSOCIATION.

The annual exhibition of bees, hives, honey, &c. of this Association, was held in connexion with the Altrincham Agricultural Show on Thursday 24th ult. Considering the late period of the year the Cheshire Committee are to be congratulated upon securing so good an exhibition. We are of opinion that the Cheshire Committee would do well to endeavour to arrange their annual show at a much earlier date, and if possible to arrange for it to be held at other good centres of the county. A county Society to be thoroughly representative should bring its advantages, from time to time, within reach of all the residents of the county. The show at Altrincham was a great success; numerous and valuable prizes were offered for competition. Nearly 100 entries were made in the several classes. In a few of the honey classes the entries were somewhat sparse, owing no doubt to the exhibition being held so late in the year.

The various classes allotted to cottagers were very well filled. In glaucing at the prize awards it will be observed that prize-winners appear both in the Open and Cottagers' classes. In Cheshire, as in most other

counties, no doubt considerable difficulty is experienced in defining the *bonâ fide* cottager. We think these classes are best confined to (1) artizans, (2) labourers; both rental and rateable qualifications have been found to be very unsatisfactory.

The whole of the honey exhibited was shown in excellent form. Sections were either glazed or exhibited in exhibition crates. Many of the crates were fitted up with good taste, and presented a very attractive appearance.

The classes for bees and observatory-hives were largely filled; the latter produced some well-made unicomb-hives; those exhibited by Mr. Nicholson were excellent specimens, well made throughout, the work of the exhibitor himself. The most successful exhibitors were Mr. J. Cotterill, being awarded seven first prizes, Mr. John Nicholson took six first prizes, Mr. Stocks also took seven first prizes, including one for a useful exhibition crate, designed with the view to enable the judge to inspect sections of comb-honey on all sides without removing them from the crate.

The show was ably managed by Mr. D. Morrison, the indefatigable Hon. Secretary, aided by the several members of the committee.

The judges were Mr. W. Carr of Newton Heath, and Mr. W. Cooke of Denton, the following being the awards:—

Class I.—Best exhibition of honey in sections, 1st, J. Cotterill, silver medal; 2nd, G. Stocks, bronze medal; 3rd, E. G. Parker, certificate. II.—English bees, 1st, J. Cotterill; 2nd, W. Franks; 3rd, E. G. Parker. III.—Any other variety of bees, 1st, J. Cotterill; 2nd, E. G. Parker. IV.—Observatory hives, 1st, J. Nicholson; 2nd, James Nicholson; 3rd, G. Stocks. V.—Collections of bee furniture, 1st, W. McNally; 2nd, E. G. Parker. VI.—Glass super of honey, 1st, S. Cookson; 2nd, J. Cotterill; 3rd, J. Nicholson. VII.—Super of honey in wood and glass, 1st, J. Cotterill; 2nd, not awarded. VIII.—Straw super of honey, 1st, J. Cotterill. IX.—Sections of comb honey not less than 20 lbs., 1st, S. Cookson; 2nd, G. Stocks; 3rd, E. G. Parker. X.—Run or extracted honey, 1st, G. Stocks; 2nd, G. Stocks; 3rd, E. G. Parker. XI.—Best exhibition of honey from one apiary, 1st, J. Cotterill; 2nd, G. Stocks; 3rd, E. G. Parker. XII.—Mead, 1st, J. Nicholson; 2nd, J. Cotterill. XIII.—New inventions, 1st, G. Stocks; 2nd, not awarded. XIV.—Comb foundation, 1st, J. Nicholson; 2nd, E. G. Parker. XV.—Honey extractor, exhibited in extracting honey, 1st, J. Cotterill; 2nd, E. G. Parker; 3rd, G. Stocks. XVI.—Bees-wax, 1st, J. Nicholson; 2nd, J. Cotterill; 3rd, E. G. Parker. XVII.—Honey-producing flowers, 1st (equal) S. Cookson and J. Goulden; 3rd, W. Franks. An excellent collection of dried plants, exhibited by Mr. Jas. Nicholson, was disqualified, as bouquets only were admissible. XVIII. Driving competition, 1st, G. Stocks; 2nd, W. Franks; 3rd, S. Cookson.

Cottagens' Classes.—Class XIX.—English bees, 1st, J. Chesters; 2nd, W. Wright; 3rd, W. Franks; 4th, W. Wright. XX.—Glass super of honey, 1st, W. Wright; 2nd, G. Stocks. XXI.—Wood and glass super of honey, 1st, J. Nicholson; 2nd, G. Stocks; 3rd, W. Franks. XXIII.—Run or extracted honey, 1st, G. Stocks; 2nd, G. Stocks; 3rd, W. Wright; 4th, J. Nicholson. XXIV.—Comb honey in sections, 1st, G. Stocks; 2nd, not awarded. XXV.—Best exhibition of honey from one apiary, 1st, G. Stocks; 2nd, not awarded. XXVI.—Bees-wax (equal), 1st, J. Nicholson and J. Goulden; 3rd, W. Wright.

BRECKNOCKSHIRE BEE-KEEPERS' ASSOCIATION.

This Association has now become a regular branch of the Agricultural Society of the County of Brecon, and wherever the Agricultural Society pitches its tents there amongst them will be found that of the Bee-keepers' Association. The meeting this year was held at Brecon on 10th September. The season has been a good one in this county generally, and the quality of the honey unusually fine. A few bee-keepers have had to complain of the presence of honey-dew in some of their hives, but the complaint is by no means general. The amount of honey staged was about 1500 lbs., of which Mr. Kettle, as usual, exhibited a large proportion. The competition in the section and extracted honey classes was very severe, and gave the judges no little trouble to discriminate between them. The first prize and silver medal were awarded to a very fine collection of 2-lb. sections from Cantreff Rectory. Mr. Kettle's collection of sections and run honey was very fine, and left little to desire as regards quality of honey and tasteful arrangement, and his collection was very properly rewarded with a first prize. Mr. Kettle, himself, is an enthusiast in the work, and has done a great deal to promote the gentle art in this neighbourhood. At the Show he kindly superintended the staging of the honey, and succeeded in the almost impossible task of trying to please everybody.

The first prize for supers was well earned by the Rev. Herbert Williams for a magnificent square super with glass top containing about 30 lbs. of honey. There was no competition in the driving class. The collection of hives was small, but good in quality; we were especially pleased with the excellent specimens shown by Messrs. Nott and Mr. Griffith, who are both prepared to supply the neighbourhood with first-class hives at moderate rates.

One of the hives exhibited by Mr. Griffith was protected by the new paper covering, which seems likely to be of great service; he also exhibited an ingenious hive for tiering up in three or four stages if desired. Our chief objection to this hive was that it was scarcely large enough for standard frames, and as this system of tiering involves the removal of sheets of brood from other hives to it, this seems objectionable. It is greatly to be desired that in future shows separate prizes should be given for clear and for granulated honey. There were several specimens of the latter exhibited, but no prizes were awarded to any of them as the competition with the clear honey was too severe. The specimens of wax were generally good, and a great improvement upon past shows.

Mr. Meadham, of Hereford, attended with the tent of the Hereford Association and gave several excellent demonstrations of driving, &c.

The judges were the Rev. G. Sale and the Rev. T. S. Stooke-Vaughan, and their awards were most carefully made and met with general approbation. A fairly large number of cottagers have now taken up bee-keeping in this county, but most of them had sold their honey before the Show came off, and so this class of exhibitors was small. Two bar-frame hives, value 10*s.* 6*d.*, and two smokers were raffled for among the cottage exhibitors, and were gained by Mrs. Jarman (hive), Mrs. Cutter (hive), Mrs. Williams (smoker), Mr. Bevan (smoker). The tiering up hive alluded to above was raffled for amongst all the subscribing exhibitors, and amidst much excitement was gained by Mr. Kettle. This system of raffling seems popular, and is a means of inducing members and cottagers to exhibit who might not otherwise care for the trouble of doing so. Below is a schedule of the prizes:—

Class I.—Best hive on the bar-frame system, with crate of supers, cost not to exceed 10*s.* 6*d.* 1, Mr. Meadham, 10*s.*; 2, Mr. Hole, 7*s.* 6*d.* II.—Best hive on the bar-frame system, with crate of supers, made in the county of Brecon. 1, Mr. Griffith, 10*s.*; 2, Messrs. Nott & Co., 7*s.* 6*d.* III.—(Members of the Brecknockshire Bee-keepers' Association.) Best exhibition of honey, either in the comb or extracted. 1, Mr. Kettle, 10*s.*; 2,

Rev. J. J. Evans, *7s. 6d.*; 3, nil. IV.—(All comers, being amateurs.) Best 12 lbs. of honey in sections. 1, Master A. Evans, Cantreff, 10s. and silver medal of the B.B.K.A.; 2, G. G. Williams, *7s. 6d.*; 3, Rev. J. J. Evans, *5s.* V.—Best 12 lbs. of extracted honey. 1, Miss Williams, 10s. and bronze medal of the B.B.K.A.; 2, Mr. Wooton, *7s. 6d.*; 3, Arthur Phillips, *5s.* VI.—Best exhibition of supers of honey. 1, Rev. Herbert Williams, 10s.; 2, Rev. J. J. Evans, *7s. 6d.*; 3, Miss C. Phillips, *5s.* VII.—Finest samples of pure bees-wax. 1, Mrs. Rees Price, *5s.*; 2, Mrs. Phillips, *2s. 6d.* VIII.—Driving competition. No entries. IX.—(Cottagers in Brecknockshire.) Best collection of honey in comb. 1, Mrs. Williams, *7s. 6d.* and certificate of B.B.K.A. framed; 2, Mrs. Jarman, *5s.* X.—Best collection of extracted honey. 1, Mrs. Vaughan, *7s. 6d.*; 2, Mrs. Cutter, *5s.*; h.commended, Mrs. Williams; commended, Mr. Thomas Bevan.

NORTH OF SCOTLAND APIARIAN SOCIETY.

The first show of honey, hives, and bees in connexion with this newly-formed Society, was opened on Thursday, September 10, in the grounds of Gordon's College, Aberdeen, and was crowned with great success. The exhibits were nicely arranged in a commodious marquee erected in close proximity to the flower show tent. An attractive list of prizes drew forth a keen competition in every class, the honey in general being pure and ripe. In the course of the day Lord and Lady Aberdeen visited the show and manifested great interest in the splendid collection. His lordship, who wishes to encourage bee-keeping amongst his cottars and crofters, after making inquiries at several members of the Association, ordered a supply of samples to be sent to Haddo House from Mr. Leslie Tait, Foveran. On entering the marquee the visitor was confronted by an immense pyramid constructed of honey supers of 1-lb., 2-lb., and 4-lb. sizes, and wreathed with evergreens and flowers. This splendid collection weighed no less than 1021 lbs., and justly brought for its owner, Mr. Tait, Foveran, the first prize and silver medal. The display of honey belonging to Mr. C. Carnegie, Marykirk, was also very artistically got up, and was awarded the bronze medal. Single supers were a fair display, but not a few of the entries were disqualified in consequence of the competitors covering the comb too deeply at the edges with paper, to the infringement of the last clause of Rule 7. The competition for 1-lb supers was very keen as also for extracted honey. In the section for 1-lb. jars of extracted honey, so much alike was the quality that one gentleman, who had two entries of exactly the same honey, got the first prize for one collection and nothing for the other. Mrs. Tait had some excellent cakes, confectionery, &c., made with honey, as also honey beer and honey wine. A few excellent observatory hives were exhibited. Mr. George Brown, New Pitsligo, showed a splendid collection of hives and bee-furniture, for which he received the first prize and silver medal. His hives were much admired for the quality of the wood, superiority of workmanship, and general arrangement. The extensive assortment of bee-furniture included everything necessary for the successful working of the apiary, and brought Mr. Brown the silver and bronze medals at the Caledonian show this summer. A large number of ladies and gentlemen visited the show during the day. The judges were—Mr. Chivas (of Chivas Brothers), Mr. Smith (of Gordon and Smith), and Mr. Webster, Gordon Castle.

The following is the prize-list:—

For best and largest display of honey and honeycomb. 1 and silver medal, L. Tait, Foveran, Aberdeen; 2 and bronze medal, Mr. C. Carnegie, Marykirk: 3, R. M'Gregor, Banchory. For best super of honey: 1, J. Shearer, Inchmarlo; 2 and 3, R. M'Gregor. For best twelve 2-lb. sections: 1, W. Clark, Banchory-Ternang: 2, Leslie Tait, 3, John Rose, Culter-Cullen. Best twelve 1½-lb. sections: 1, L. Tait; 2, W. Clark; 3, John Tough, Mirebird Crathes. Best twelve 1-lb. sections: 1, W. Munro, Crathes; 2, G. Brown, New Pitsligo; 3, L. Tait. Best twelve 2-lb. jars of run honey: 1, C. Carnegie; 2, W. Munro; 3, G. Green, Cluny. Best twelve 1-lb. jars of run honey: 1 and 2, W. Munro; 3, G. Green. Best sample of run or extracted heather honey, not less than ten pounds: 1, Richard M'Gregor; 2, C. Carnegie; 3, J. Shearer. Best run or extracted clover honey, not less than ten pounds: 1, Charles Carnegie; 2, J. M. Beveridge, Torphins; 3, George Brown. For best mead: 1, 2, and 3, Mrs. Tait. For best cake made with honey: 1, and biscuit box, Mrs. Tait; 2, George Brown; 3, Mrs. Brebner, Inchmarlo, Banchory. For best collections of different art, made with honey: 1, Mrs. Tait; 2, Mrs. Innes, F. C. Manse, Skene; 3, Charles Carnegie. For best collection of hives, &c.: 1 and silver medal, George Brown; 2 and bronze medal, L. Tait; 3, Cardno and Darling, 80 Union Street, Aberdeen. For best observatory hive: 1, R. M'Gregor; 3, William Clark; 3, L. Tait. For best sample of wax: 1 and 2, William Munro; 3, R. M'Gregor.

NOTTS BEE-KEEPERS' ASSOCIATION.

The first Annual Honey Fair in connexion with the Notts Bee-keepers' Association, was held at Nottingham, on September 18th and 19th. The spacious Auction Rooms of Mr. Laslett, Market Street, were engaged for the purpose. From the fact of the rooms being used for sales by auction, an idea prevailed with the public that the honey was to be sold by auction, and this, no doubt, influenced the sales to a very considerable extent. About two tons of honey were staged, and although some lots might have been better in colour and more neatly put up, still the general appearance was good. Nottingham has been so badly supplied for some years with good English honey, that the commodity has almost ceased to be recognised as a saleable article by the various grocers and other tradesmen in the town. The effect of the efforts made by the Association, especially in holding this fair, is already visible, many of our leading shopmen having their windows full of honey. To return to the fair. The best honey sold readily at a fixed price of 1s. per pound, extracted honey being sold much better than sections. Several large lots that were staged were sold by private contract at 10*d.* and 10½*d.* wholesale. The silver medal of the British Bee-keepers' Association was offered for the best six 1-lb. sections, and was worthily won by the Rev. T. B. Garland, Ranby, Retford. The bronze medal of the Association was also offered for the best six 1-lb. jars of extracted honey, and was taken by Mr. A. Felstead, Rempstone, with a splendid sample. A conspicuous feature of the fair was a beautiful bell glass, weighing over 40 pounds, exhibited by Mr. Geo. Cassain, of Newton, and it commanded general admiration, being afterwards sold for 3*l.* About 1½ tons of honey were disposed of. Although the fair was not such a decided success as we had anticipated, still the committee are to be heartily congratulated. The demand for honey in the town and neighbourhood of Nottingham is (in the writer's opinion) bound to increase, and if the members of the Notts Bee-keepers' Association will learn the lesson that was given them at Mr. Laslett's Mart, and be more particular in offering their honey for sale in a neater and more attractive form, there is no reason why the fair of 1886 should not vie with all similar sales held under the auspices of the neighbouring county associations.

WIGTOWNSHIRE APIARIAN SOCIETY.

The third annual show of honey, bees, and the appliances used in connexion with bee-culture, in connexion with the above Association, was held in the Old Town

Hall, here, on Friday last. The show was unquestionably the best that has yet been held here, both as respects quality and numbers. In the latter respect the advance over former years was very marked, no less than eighty entries being made, while the commercial value of the honey shown represented about 100*l*. Many of the exhibits were of a very high class, particularly the super which carried off the silver medal, followed very hard by the super second in the same class. There was a great display of run honey, which was pronounced by the judge to be over all excellent. There was exhibited by the Rev. V. H. Moyle a selection of honey as food, beverages, medicine, &c., which attracted considerable attention. In hives and appliances for bee culture, Mr. Ross, of Stranraer Reformatory, brought forward for show a great variety of useful articles, for the humane treatment of bees. Mr. Stewart, Lochans, exhibited a bar-frame hive, which was highly commended by the judge. Many new makers have entered the field, and the competition among them must have a beneficial effect in securing the best workmanship and the most economical prices. Another of the specialities was the improved Stewarton hive. All the wants of the experienced apiarian are contained in this handy hive. The judge was Mr. Richard M'Nally, Glenluce, and it may be added that the Messrs. M'Nally did not show.

The following was the prize-list:—I.—For the best super honey over 15 lbs., 1st and medal, David M'Dowall, Glenluce: 2nd, J. Fleming, Castle-Kennedy; 3rd, W. Carson, Glenluce, and Mr. W. H. M'Dowall, Kirkcowan, equal. II.—Super honey under 15 lbs., 1st, J. Fleming; 2nd, J. Muir, Castle-Kennedy; 3rd, Rev. J. B. Robertson, Leswalt. III.—Best heather honey over 15 lbs., 1st, W. Carson; 2nd, W. H. M'Dowall; 3rd, S. M'Millan, Glenluce. IV.—Best heather honey under 15 lbs., 1st and 2nd, J. Fleming; 3rd, W. H. M'Dowall. VI.—Best twenty 1-lb. sections, 1st, Rev. J. B. Robertson and J. Fleming, equal; 3rd, J. Fleming. VII.—Best twelve 1-lb. sections, 1st, J. Muir; 2nd, J. Fleming; 3rd, W. H. M'Dowall. VIII.—Best six sections over 1½-lb., 1st, J. Fleming; 2nd, W. H. M'Dowall; 3rd, J. Fleming. IX.—Best run honey (over 20 lbs.), 1st and 2nd, Rev. J. B. Robertson; 3rd, J. Fleming. X.—Best run honey (under 20 lbs.), 1st, J. Fleming; 2nd and 3rd, Rev. J. B. Robertson. XI.—Best straw super, 1st, J. Fleming; 2nd, Rev. J. B. Robertson. XII.—Best super honey belonging to a cottager, 1st, Nathan Angus, Carscreugh; 2nd, W. Downie, Castle-Kennedy; 3rd, Miss Hall, Castle-Kennedy. Best sample bees-wax, 1st, W. H. M'Dowall; 2nd, D. M'Dowall; 3rd, J. Fleming; 4th, Rev. J. B. Robertson.

The show was visited during the day by large numbers.

STIRLING BEE SHOW.

The Annual Bee and Honey Show was held in connexion with the Horticultural Society's Show in the new Public Hall, Albert-road, on 27th August.

The observatory hives were as usual the principal attraction, which created no little interest. In crowded rooms, such as the one in which this exhibition was held, where the bees are confined for over twenty-four hours, the ventilation should be almost quadrupled from that of the ordinary observatory hive, where the bees have access to the open air. The words 'heather honey,' and a crown worked by the bees, were the principal attractions on the honey tables.

Mr. R. J. Bennett, of the Caledonian Apiarian Society, was the only judge. In giving his award, for the finest display of honey, to Mr. Peacock, Mr. Bennett drew attention to the want of care displayed in placing and dressing the exhibits.

The absence of the ordinary paring, sapping, and general dressing, that goes a long way to making a good show, deprived this otherwise very beautiful exhibit of having the appearance it should have, either for show or for market. This might also be said of most of the exhibits. General carelessness on the part of the exhibitors has been the marked characteristic of this Show, this being the opinion of an expert. It is hoped those interested will profit by what has been said.

The prize takers were as follows:—Class 1: Finest display of honey and honey comb—1st prize, Thomas Peacock; 2nd, James Johnstone. Class 2: 1st, Peter McTavish; 2nd, James Johnstone. Class 3: 1st, Peter McTavish. Class 4: 1st, James Johnstone. Class 5: 1st, John McIntosh; 2nd, James Johnstone. Class 6: 1st and 2nd, James Johnstone. Class 8: 1st, James Johnstone. Class 11: Best samples of wax—1st and 2nd, James Johnstone. Class 12: Observatory hives stocked with bees—1st, Mark Hodgson; 2nd, James Johnstone.

FALKIRK BEE AND HONEY SHOW.

This Show was held in the Town Hall in connexion with the Annual Horticultural Show on 28th August.

Mr. Bennett, of Glasgow, and Mr. Wm. Thomson, of High Blantyre, were the judges. Mr. Bennett drew attention to the marked difference of the exhibits from what he had witnessed the day before at Stirling. Here were two towns, only some ten or twelve miles apart, and the bee-keepers showed so much difference in their knowledge of how to stage their exhibits.

The following were the prize-takers:—Class 1: Observatory hive stocked with bees—1st, Wm. Paterson; 2nd, Wm. B. Watson. Class 2: Super of honey not less than 16 lbs.—1st, Wm. Sword; 2nd, M. W. Smellie. Class 3: Super of honey not less than ten lbs.—1st, Wm. Crosbie; 2nd, Alexander Paterson; 3rd, Charles Reid. Class 4: Best extracted honey—1st, Wm. Sword; 2nd, Wm. Crosbie.

NORTH-EAST OF IRELAND BEE-KEEPERS' ASSOCIATION.

The second Annual Show of this Society was held in the Exhibition Hall, Royal Botanic Gardens, on Friday the 11th September. Although the weather during the previous part of the week was anything but fine, it cleared up on Friday morning, and so favoured the bees. The hall looked very well with its tables of honey (pure Irish) and observatory hives. Of these latter there were six specimens. Mr. W. Lonsdale, of Lurgan, exhibited certainly the finest hive, holding six frames, and opening out into something of the shape of a fan: but as the prize was for the bees and not for the hives, he only took second place in this class, the first being awarded to Mr. E. W. Lockhart, for a specimen of Ligurians. A novel feature in this class was a specimen of Cyprian bees, exhibited by Mr. Henry Valentine.

Of honey there was a very good show, and the variety of colours, from the almost transparent 'white clover' to the inky aphide secretion, seemed to astonish the visitors. In the class for the best super of comb honey, not being sectional, there was a splendid show. One box weighing 50 lbs., exhibited by Mr. J. J. McCabe, of Katesbridge, Rathfriland, was simply perfection, it contained eight combs, beautiful alike for their regularity, colour, and straightness.

It was with pleasure we noticed that our English friends are taking an interest in the bee-keeping of the North of Ireland. Messrs. Abbott Brothers exhibited a splendid hive, which would certainly have taken first place had it not been for Mr. William Porter, of Jerrittspass, Newry, who exhibited a hive which was in itself perfection. It comprised the hive proper or brood-nest, containing eleven standard frames, a doubling box holding eleven frames more for extracting purposes: this last was separated from the lower hive by a sheet

of excluder zinc, there was also a crate of sections in three parts which could be used instead of the doubling box, and ventilation could also be supplied through the floor-board if desirable.

The following is the list of prize-winners:—

Bees.—Class 1, Best stock of honey bees, to be exhibited in an observatory hive; 1, F. W. Lockhart; 2, William Lonsdale; 3, W. R. Orr.

Honey.—Class 2, Largest and best exhibition of honey from one apiary, 1, William Lonsdale; 2, A. Morris. Class 3, Best super of comb honey (not being sectional), also a special prize of one guinea presented by H. J. McCance, Esq., for the best exhibit belonging to a tenant farmer in the hunting districts of Antrim and Down; 1, and special prize, I.J. McCabe; 2, W. R. Orr; 3, Rev. James Hunt. Class 4, Best twelve one-pound sections of comb honey; 1, S. Hill; 2, W. R. Orr; 3, E. W. Lockhart; 4, Rev. R. D. Knox. Class 4a, Best twelve two-pound sections of comb honey; 1, J. Francc; 2, H. Valentine. Class 5, Best twenty-four one-pound, or twelve two-pound glass jars of extracted honey; 1, W. E. L'Estrange Duffin; 2, W. R. Orr; 3, W. E. Best. Class 6, Best twelve one-pound or six two-pound glass jars of extracted honey; 1, A. Turkington; 2, W. E. Best; 3, W. R. Orr.

Wax.—Class 7, Largest and best exhibit of bees-wax, confined to members of the Association; 1, W. Lonsdale; 2, W. R. Orr.

Hives, &c.—Class 8, Best bar-frame hive honey; 1, a silver medal, presented by Messrs. Alex. Cross Bryce & Co., W. Porter; 2, Abbott Brothers; 3, W. Lonsdale. Class 9, Best and most complete bar-frame hive, not to exceed 15s., to be made in Ulster; 1, W. Porter; 2, W. Munroe. Class 10, For the best collection of hives and bee-appliances; 1, silver medal, presented by J. K. M'Causland, Esq., W. Lonsdale. Class 11, Best invention calculated to advance the interests of bee-keeping, to be made in Ulster; 1, W. H. Lawler, for Lawler's improved section crate.

Driving.—Class 12, Driving skep of bees; 1, W. Lonsdale; 2, S. Hill.

Flowers.—Class 13, Best collection of bee flowers; 1 (presented by Mr. M'Duff, High Street, Belfast), Abbott Brothers.

Mr. W. R. Orr, Strabane, was a large exhibitor, and took six prizes.

In Class 4, the winner of the first prize would have also carried off second had it not been that there was a rule to the effect that no competitor could take more than one prize in any class.

Abbott Brothers and their Employés.—Messrs. Abbott Brothers, of Southall, gave their annual treat to their employés and the staff at the railway station, on Saturday, September 15. The employés of the firm number about fifty. They spent the afternoon at Fairlawn, where Mr. C. N. Abbott had arranged a large variety of games including cricket, bowls and billiards. In the evening a sumptuous dinner was laid in a marquee on the lawn, at which nearly eighty sat down. Mr. C. N. Abbott presided, and Mr. C. T. Abbott was in the vice-chair. Mr. Tidy, the foreman, proposed the health of Mr. C. N. Abbott, who thanked his employés for the manner in which they had worked during a remarkably busy season, necessitating much over-time. He then, in terms of warm praise, gave 'The employés of Southall Railway Station;' and Mr. Gray, the station-master, who responded, said that he had learnt more geography since he had been at Southall than he had ever known before. The railway despatched upwards of 5000 parcels for Messrs. Abbott during the year, and received large consignments from America and Germany. Various other toasts were proposed and responded to, and the company separated much pleased with their entertainment.

Correspondence.

*** All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to 'The Editor of the "British Bee Journal," c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.'*

OUR HONEY IMPORTS.

The value of Honey imported into the United Kingdom during the months of July and August 1885, amounted as follows: July, 12,116*l.*; August, 2331*l.*

[From a private return sent by the Principal, Statistical Department H. M. Customs, to E. H. Bellairs, Wingfield House, Christchurch.]

MY FIRST YEAR'S EXPERIENCE.

In fulfilment of my promise to give you all particulars of my first year's attempt at bee-keeping and the result of it, I now hasten to do so. I came into this county to work in December last, and then for the first time saw the modern method of keeping bees, and taking a great fancy to them, and my employer kindly giving me permission to keep my hives at my cottage in the park here, I, in February last, bought a bar-frame hive from a man who was going abroad, with bees in it, which had been driven the preceding autumn. I got a fellow bee-keeper to kindly help and show me how to deal with them the second week in March. I found it healthy but weak. It then had five frames in. I commenced at once to feed them, according to the rules in *Modern Bee-keeping;* and the weather being open and fine I was able in a week to put in two more frames. On looking at them ten days after I found they had nearly filled the frames with comb, and had got brood in several. I then added two more frames, which filled the hive, and continued to feed them regularly every evening till May 30th, when, finding they were both nearly full of sealed stores and comb and had plenty of brood, I put on a crate of twenty-one 2-lb. sections. We, unfortunately, then had a week's wet weather, but it afterwards came out very fine and hot, with the result that on the 17th of June I was able to take off my first honey, namely, two 2-lb. sections well filled and finished off. On June 23rd I took off six 2-lbs.; on July 1st, four 2-lbs.; on July 10th, eight 2-lbs.; on July 19th, five 2-lbs.; on July 28th, three 2-lbs. This, I am sorry to say, was the last of the very beautiful clear coloured honey I got; after that it got darker. On August 3rd I got off five 2-lbs.; on August 12th, seven 2-lbs.; on August 22nd, six 2-lbs.; on August 29th, two 2-lbs.; and then finding that there was very little honey coming in I did not again look at them till I took the section crate off on September 12th, when I found one 2-lb. finished, and a good many more with comb drawn out and with more or less honey in them, but these I do not count. The total for this hive is thus 98 lbs. of super honey and 12 lbs. of extracted honey, which I wanted for show, or, together, 110 lbs.

After I bought my first hive I set to work and made a double hive on the Cheshire principle, out of some old packing-cases I had, and well puttied and painted it, and on June 14th my employer had a fine first-swarm of blacks from a neighbour's straw hive, which was very kindly made a present to me. I hived them in the bar-frame hive the same evening on six frames with half-sheets of foundation, and fed them. On June 20th I added two more frames, and on June 30th two more, which filled the hive. I fed them till July 8th, when I put on a section crate of fourteen 2-lb. sections. On July 16th I took off two 2-lbs.; on July 19th, one 2-lb.; on July 24th, two 2-lbs.; on July 29th,

three 2-lbs.; on August 2nd, one 2-lb. After this I did not get off any more well-finished sections, but on taking off the section crate on September 14th, three sections were as nearly as possible full, but not all sealed. Total for this hive, 18 lbs. of well-finished super honey, and 6 lbs. not sealed. The first week in September I heard that a man near here was going to take some straw skeps, and I offered him a consideration if he would allow me to drive them instead of giving them the brimstone pit. This he consented to do, and I with two friends (who were going to have the surplus bees which I did not want) went and successfully drove nine skeps one evening, I taking three lots and they the remainder. One lot I put into the other half of my double hive, and I bought an old double hive very cheap, in which to put the other two lots. We helped to hive each other's, and got them all safely housed the same evening. The next morning I thought I saw signs of robbing, so closed up the doors, so as to allow only two bees to pass at once, and fed them in the evening. I gave them each three frames of sealed honey taken from the old stocks, and have fed them regularly up to date when I looked at them, and found them doing well, with the three frames of foundation I had put into each hive three parts worked out, and with sealed stores in them, and what pleased me more than all a fair amount of brood. They are doing so well, in fact, that I have now put them and also my old stocks up for the winter, and do not fear finding them well in the spring.

A word or two now, sir, if you can spare the space, as to the sale and showing of my honey. To commence with showing: I sent a case of six 2-lb. sections to the first show of the year at the Royal Counties Show at Southampton. I am sorry to say an accident occurred to them, as on arriving at the Show the horse was startled by the machinery, started off and upset my case, breaking my supers, every one of them, and these were my best.

My next attempt was also at Southampton on August 1st, when I was fortunate enough to win the silver medal of the B. B. K. A. with 12 lbs. of super and 12 lbs. of extracted honey. The next was at a local show, when I got second in the Open Class and third in the Cottagers. The next, and last so far, was at Romsey, on 9th September, when I got second for super honey in the Open Class, and first for extracted in the Open Class; a total of five prizes. As to sale: what I have sold I have had Is. 6*d.* per lb. for, but, of course, I do not expect to get that price for the remainder; but to show that it does pay cottagers to keep bees, and especially on the modern principle, I will put the small average price of 8*d.* per lb. on the weight of honey I have this year, and will now give you, at that rate, my outlay and receipts.

Outlay.	£	s.	d.
Hive and bees	1	0	0
Sugar	0	5	0
Foundation	0	4	10½
Supers	0	6	0
Paint, putty, and nails	0	3	8
Bought old hive	0	3	6
Veil and sundries	0	7	0
	2	10	0½

Receipts.	£	s.	d.
116 lbs. super honey at 8d.	3	17	4
Extracted honey	0	4	0
	4	1	4
Prizes at Shows	2	0	0
	6	1	4

Showing, at this very moderate rate, a balance of 3*l.* 11*s.* 3½*d.*, and a good stock of five bar-frame hives to start the spring with next year. My total would, of course, have been much larger had I not given the driven bees the frames of honey which I could have extracted. I am quite a novice, and no doubt much larger and better results are obtained by more experienced people; but I thought that the few simple facts above would at least show any intending beginner of bee-keeping that it can and does pay, to say nothing of the pleasure it is to one, providing they give the subject only moderate attention; but to anyone who, like myself, takes a real pleasure in it, it is a good recreation both for body and mind, and they will greatly enjoy it.—A Hampshire Bee-keeper.

MY EXPERIENCE WITH BEE-POISON.

In 1858 I put two colonies of bees in an attic closet, but I made no experiments of any kind with them; they were simply looked at and admired. In 1859 I fairly began my apiarian career, and I soon found that to experiment much with bees meant to get many stings; at first these were not only quite painful, but caused severe swellings. I dreaded to be stung the latter part of the week, for often one eye would close and the other nearly so, and to preach in such a condition was by no means a pleasure. If stung on the hand, my whole arm would swell so rapidly that if my coat was not seasonably taken off, it had to be ripped off. In short, I was a regular martyr to bee-poison.

My second year's experience was much more favourable, and in the course of a few years I became almost bee-proof. In the pressure of business, and my zeal for studying the habits of the bee, I generally preferred to be stung occasionally than to lose time by wearing a bee-hat. The pain of a sting was seldom very severe, and not often caused much swelling. My experience was the same with that of most bee-keepers who have persevered in spite of stings, until at last their systems become accustomed to the poison.

A few facts out of many that might be given: I once agreed to help a farmer to move a hive to a new location. He assured me that the bottom board was securely fastened. It fell off before we had got more than a few steps with our load—covered with bees, some of which were crushed—and the air at once was filled with the enraged insects. The farmer dropped his side of the hive and ran away; it fell against me, but I held on until I lowered it to the ground, and then made the best of my way into the house. Perhaps a hundred or more stings were pulled out of my face and head; and yet in a few hours one could hardly notice that I had been stung at all. When visiting that great man, Dr. G. P. Kirtland, of Cleveland, Ohio, he wished me to examine with him a colony of bastard (hybrid) bees. The doctor was armed with bee-hat and gloves—both of which I declined to use. We quieted them pretty well with smoke, when he began to discuss some point in bee-culture with his usual animation. Soon his gesticulating hand was doing quite a business, the bees became furious, and paid all their respects to me; and how many stings were pulled out my face and head I cannot tell. As soon as this extracting work was over, I said, 'Doctor Kirtland, I protest against all eloquence in the vicinity of bee-hives—especially when you are clad in proof armour and I have none!' Although ever so well stung the pain was soon over, and in a short time no visible proof remained that a bee had stung me.

In 1874, after the death of my son, my health became so much impaired that I sold all my bees. The next spring an entire change seemed to have come over me with respect to the bee-poison. I first noticed it in extracting some stings with the poison sac attached for a friend who wished to procure the bee-poison in a perfectly pure state. I had noticed at the beginning of each year's work among the bees that the poison affected me in various ways, and my wife would often have to awaken me when she heard me unconsciously moaning in my sleep. The night after pulling out these stings this moaning became so pronounced as to awaken the friends with whom I was staying, and alarmed them with the fear that that I was dying. Intense dryness of the tongue and fauces, accompanied sometimes by what seemed to be an aggravated form of heart-burn, smarting of the eyes, a heavy drooping sensation in the eyelids, breaking out fiery spots over various parts of my body,

a disposition to almost tear the flesh of my cheeks, dreaming of the most excited kind, full of violent motion—these and many other symptoms were of frequent recurrence at the beginning of each bee-campaign.

After getting the medicinal bee-poison, as before recited, the effect upon me was so severe that I became really alarmed, and earnestly sought to protect myself against any recurrence of such unpleasant symptoms. I soon found that this was next to impossible. To converse with those fresh from handling bees—nay, even to receive letters or postal cards from them—was to be poisoned again.

Ten years ago, being at my old home in Greenfield, Mass., I engaged to visit my friend Wm. W. Cary, of Coleraine, one Saturday afternoon, intending to preach to a congregation where for some years I had served as their pastor. The day was a charming one, and I was quite happy at the thought of meeting so many old friends. Mr. Cary had been handling bees all day, and was well charged of course with the bee-poison. Almost as soon as he had shaken hands with me, my eyes began to smart, my eyelids to feel heavy, and my face to itch. My spirits sank at once, and the thought of preaching and seeing my old friends caused me only anxiety; in short, the very bottom of all hopefulness seemed to drop out, as it were, in a few moments. Explaining my reasons, I sought other quarters, but the pleasure of my visit was essentially spoiled. Imagination! I hear some one saying. Does imagination cause burning eruptions on the body, constant roaring in the ears as though near a waterfall, to say nothing of moaning in sleep, &c.?

From 1875 to 1881 I dreaded the return of each bee-season. My letters were all read by some member of my family, that I might handle none from bee-keepers. I felt that, let my general health be what it might, I could do nothing more with bees. While I could easily trace much of my suffering to the bee-poison, I could not believe that it was the cause of the head trouble from which I had suffered so much, for I was a frequent martyr to this many years before I kept bees. Now had I given my experiences with the bee-poison from 1875 to 1881, I should have left the matter in such a shape as to prejudice many against having anything to do with bees. I should only have given the actual facts in my case, but for want of other facts not then duly weighed by me, my facts would have seemed to warrant inferences just the opposite from the truth.

In the spring of 1881, my health being more fully restored than for some years, it seemed to me almost an impossibility to keep longer away from the bees. A new thought suddenly occurred to me. Suppose a person after long use of tobacco or opium should give them up for some time—long enough for the effect they produce to pass away—and should then attempt to take the old, big dose, would he not be naturally alarmed at the result? May I not be mistaken then in supposing that any great change has taken place in my system as respects the effects of the bee-poison upon it? and may not my painful experiences of the last six years be accounted for in another way? So long as I kept bees and dealt so largely in queens, I was compelled each year to inoculate my system so fully with their poison, that however severe the ordeal at first, I soon became indifferent to it. Now, being under no such necessity, I stop short every time of full and repeated doses. Suppose that I take such doses again. With fear and trembling on the part of my family, but with scarcely any on my part, I determined to test the matter, for as even the presence of freshly extracted honey in the house was enough to bring on another attack, I felt that I must get out of the world before I could escape from this dreaded poison. I determined, therefore, to make full proof of my new theory. Without any bee-hat I helped my friends to extract their honey, all the time saying to the bees, 'Sting me as often as you please;' and as they were gentle Italians, I did not scruple by somewhat rough treatment to make them do much more than they naturally wished to in the way of stinging. From the very first I did not suffer nearly as much as I had done every year since I ceased to work with the bees, and little if any more than I had done every year when first handling them. In about a week I was again bee-proof, and launched out at once into a course of experiments (all in vain) to control if possible the impregnation of queens.

However, I describe the delight I felt in handling again the moveable frames. In the apiary of a neighbour, Rev. McGregor, I fully proved that with small strips of foundation for guides, I could use my comb-guides, or guide-frames, and secure from Italian bees the same perfect worker-combs that I used to get with these guides from the black bees, thus realising a favourite idea of one of our greatest bee-keepers, Doolittle, viz., getting perfect worker-combs with the least use of foundation.

While handling frame after frame of such combs, and feeling as much enthusiasm as I did in 1853, when I first saw that the bees would follow the triangular comb-guide, I exclaimed to the Rev. McGregor (apologising for the seeming play upon his name), 'I must make these words of Rob Roy in Scott's novel my own: "My foot is upon my native heath—and my name is McGregor!'

—Rev. L. L. Langstroth, *Oxford, Ohio.*—(*American Bee Journal.*)

JOTTINGS FOR *JOURNAL.*

Colour of Hives.—Reference is made from time to time in the *Journal* as to colour of hives, some thinking that hives should be painted different colours so that the queens may know where to return when on their wedding trips. Now the question is do queens often leave the hive so as to gain a knowledge of different colours, because if she does not where is the utility of the idea; if she were constantly going in and out of the entrance, the same as worker bees are, I would concede the point, but as she so seldom leaves the hive, I don't see how she can possibly know green from white, or stone from chocolate; and as we know worker-bees fly to the same spot by instinct, I think we may conclude the queen would do the same irrespective of the colour of the hive. I may mention all my hives are stone colour with green bands, *i. e.* the fillets are painted green the other parts and legs are stone-coloured.

Disposal of Honey.—I should advise those who are unable to dispose of their honey in their respective localities to advertise their honey in *B. B. Journal.* It is not desirable to expect too much from experts. Some people expect the experts to show them how to manage their bees, how to take their honey and put it up in a saleable form, and then find a market for them for their honey at a good price, so that they shall have no trouble or expense themselves. For myself I am not one that wants a deputy. If I had as many tons as I have sold hundredweights, I have not the slightest doubt I could soon find a market for it. I can say that during the last few years that I have taken an interest in bee-keeping, I have found bee-keepers generally, and 'experts' in particular, ever ready to give advice and assistance for the asking, either on matters of management or disposal of produce.—Woodleigh.

VARIOUS ANTISEPTICS

For Mixing with Food, and Spraying Hives and Combs, viz., Thymol, Eucalyptus, and Salicylic Acid.

Some questions having recently been asked in the *Bee Journal* as to the means of giving salicylic acid to the bees, may I be permitted to submit the result of experi-

ments made by me, and the means I employ in giving the acid to them?

I do not consider it advisable to give the bees thymol in food, on account of its irritating properties, strong odour, and unpleasant taste; it, however, being a powerful antiseptic, is very valuable in solution for painting the floor-board, or any part of the hive which may have become mouldy, or has been foul, and is to be thrown out of use for a time. I advise the use of the following solution: thymol, ½ dram; spirits of wine, 4 ounces. The part on which this solution is used should be exposed to the atmosphere for at least twelve hours. Oil of eucalyptus is insoluble to any extent in water, and being very volatile, also having an unpleasant taste, I do not consider it of much use for purposes of spraying, or for feeding; it might, however prove useful for painting purposes. Far the most efficacious and suitable disinfectant for bee-keeping generally is, in my opinion, salicylic acid. It has no smell, a slight sweetish taste, and being able to resist all natural attempts at decomposition, offers the greatest amount of advantage to other disinfectants, not only for the prevention of foul brood, but for mixing with food. The following formulæ are those which I find most useful: No. 1. For spraying combs *without* brood. Salicylic acid, 4 grains; spirits of wine, 3 drams; water, 2 ounces. The acid is dissolved in the spirit, and the water then added. For spraying combs containing suspected foul brood, one ounce of syrup, and one more of water, should be added to the above quantity; it should then be used with a very fine spray-producer.

No. 2. For giving in food. Salicylic acid, 40 grains; sugar, 4 or 6 pounds; water, 1 quart. First boil the water, in which dissolve the sugar; when it again commences to boil, stir in the acid, which dissolves almost instantly. By this method of making syrup, each ounce of syrup will contain nearly half a grain of the acid, and will not require any vinegar, borax, citric, tartaric acid, or any other substance (which must be nauseous to the bees) to prevent it crystallising. Having had some years' experience in bee-keeping, I can well recommend the foregoing.

A substance called menthol (it is allied to peppermint, and is harmless to bees) I find extremely useful when joining stocks. The bees are first sprayed with a weak solution in thin syrup, a few crystals are then placed on the floor-board, the effect of the evaporation from the crystals lasting for a considerable time after the smell of the spraying is exhausted.

The quantity advised would be weighed by any chemist when purchasing them.—T. J. D.

VENTILATION OF HIVES.

You are, doubtless, quite familiar with the old experiment, in which a bottle filled with smoke is rapidly emptied by the insertion of a diaphragm of paper or card in the neck of the bottle. It occurred to me a few nights ago that the same principle might be applied to the ventilation of hives. Accordingly, one very hot night, when the bees were fanning vigorously, I formed a diaphragm of a piece of lath, and inserted it midway in the door of a Combination hive. To test the result, I applied a lighted candle as near as I could to either opening, and on one side the flame was sucked into the hive, on the other it was violently expelled, showing that an active circulation of air was taking place. The next day I tested it again by fastening a bit of tissue paper to a thread, and suspending it before each aperture in turn—the same effect was exhibited. On one side the indraught drew the paper within the hive, while on the other side it was expelled by the outdraught. I have since inserted diaphragms in several other hives. For some reason which I cannot explain, the action is not equally vigorous in them all; but in all it is demonstrated in more or less degree.

Will some of your readers try the experiment, and give their opinion of the value of the process as a means of ventilation?—A.

BEE CLUB.

We have here amongst ourselves, in Swanmore, a small Bee Club, kindly started and most generously kept going by our Vicar; it consists of only a few members, and I thought that it would be interesting to some of your readers in other villages if I sent you an account of what six or seven only of us have done this year; between us we have taken from our hives (which number fifteen or sixteen at most that we have had at work) considerably over 1000 lbs. of honey and the following prizes:—eight firsts, including the silver medal of the B. B. K. A., four seconds, and four thirds, or a total of sixteen prizes, which I think should encourage every one to try more and more to take every care of the poor little bees who work so hard for us, and to those who have none it will show that there is a good prospect of success open to them.—A Hampshire Bee-keeper.

STRETCHING OF FOUNDATION SHEETS.

Following Mr. Simmins' recommendation in your *Journal* of returning swarms on two bars of brood, and the rest whole sheets of foundation, I have found that the foundation stretches very considerably downwards, in fact, spoiling the greater part of comb for brood-rearing. How am I to obviate this difficulty? I left half to three-quarters of an inch for sinkage, but this did not do. If half sheets only are given, drone comb in quantity is often built. Does this stretching of the foundation arise from over-heat in hive, or bad quality of wax? I have been much annoyed in several hives in this way. Ought I to extract these combs and melt them down, the cells are so elongated that the bees I fear, cannot raise brood therein. I may add that section-crates were on most of the hives in which this happened; but not on all. Your reply in next issue will much oblige.—W. J. T.

[The above having been forwarded to Mr. Simmins, we have received the following reply:—"Your correspondent must have covered his bees up too warm the first few days, though that would not matter so much with a wide entrance. With an entrance 12 × ⅜, I have frequently hived double swarms on all foundation (about eight sheets to the pound), and no stretching has occurred, no wires are used. Where no supers are given such newly-hived swarms, a single thickness of ticking is quite sufficient for the first few days, and warmer covering may be given after the first week; the frames meanwhile being placed not more than one-fourth of an inch apart. Your correspondent's combs will do as well as any for extracting, but if not required for that purpose, they should be run down at once, as more wax will be obtained while comparatively new.—S. S.]

A YEAR'S DOINGS.

I have pleasure in sending you a few particulars of the present year's doings of my hives and bees. I commenced the year with three hives; and from hive number one I have taken 108 lbs. of super honey, from hive number two, forty-five lbs. of super honey and from hive number three, thirty-eight lbs. of super honey. Each of the hives contains twelve bar-frames, and from the three hives I have taken sixty-nine lbs. of extracted, making a total of 191 lbs. of super honey and sixty-nine lbs. extracted, or together 260 lbs. of honey from three hives. I have now increased my number of hives to eight. I have only had one swarm, and the bees for the other hives I have driven; I think that at a very low rate indeed, I shall get 9*l.* 15*s.* for the total quantity, to be added to that is 4*l.* 10*s.* for prizes, taken at the

following shows:—First at Royal Counties' Show at Southampton; first at the Southampton Show on August 1st and 3rd; first at a local show; first at Romsey on September 9th, and second at a local show. All these for super honey in the Open class, and second in the Open class for extracted honey at Romsey on September 9th, and first in the Cottagers' class for extracted at the same Show. My expenditure for the year has been:—

Outlay.	£	*s.*	*d.*
Supers and foundation	0	15	0
Wood for hives	2	10	0
Paint and nails	0	6	6
Sugar	0	5	0
	3	16	6
Receipts.	£	*s.*	*d.*
Sale of 260 lbs. of honey, at least	9	15	0
Prizes	4	10	0
	14	5	0

Showing a gain on the year of 10*l.* 8*s.* 6*d.* I thought these few particulars might be interesting to you.—G. Horner, *Bishops Waltham, September 27th*, 1885.

[Very interesting to us, and most encouraging to cottagers.—Ed.]

A COMIC ELEGY.

The death from a bee sting mentioned in a late number of the *Journal* reminds me of the death of a Miss Ellen Gee, of Kew, written some thirty-five years ago, who therein is supposed to have died from a sting in the eye by a bee, and thinking it may interest your readers I forward it.

Peerless, yet hapless maid of Q.
Accomplished L N G,
Never again shall I and U
Together sip our T.

For ah! the fates, I know not Y,
Sent midst the flowers a B;
Which venomous stung her in the I,
So that she could not C.

L N exclaimed: 'Vile, spiteful B!
If ever I catch U
On jessamine, rose-bud, or sweet P,
I'll change your stinging Q (cue).

'I'll send you, like a lamb or U,
Across the Atlantic C';
From our delightful village Q
To distant O Y E.

'A stream runs from my wounded I
Salt as the briny C,
As rapid as the X or Y,
The O I O or D.

'Then fare thee ill, insensate B,
That stung I know not Y;
Since not for wealthy Durham's C
Would I have lost my U.'

They bear with tears fair L N G,
In funeral R A,
A clay-cold corse now doomed to B,
Whilst I mourn her D K.

Ye nymphs of Q, then shun each B,
List to the reason Y:
For should a B C U at T,
He'll surely sting your I.

Now in a graveyard deep in Q,
She's cold as cold can B;
While robins sing upon a U
Her dirge and L E G (elegy).

J. Brown, *Melksham, Wilts.*

Echoes from the Hives.

Witheridge, North Devon, Sept. 22.—The quantity of honey gathered in this district in the past season has been astonishing. I give you the following results in my own apiary. Hive No. 1: Sixty-seven 2-lb. sections, five frames, six lbs. stored underneath in empty box upon which hive was standing, total weight 164 lbs. Hive No. 2: Sixty-two 2-lb. sections, three frames, total weight 129 lbs. Hive No. 3: Forty-nine 2-lb. sections, seven frames, six lbs. stored underneath, total weight 140 lbs. Hive No. 4. and swarm from ditto, twenty-one 1-lb. sections, nine frames, total weight eighty-four lbs. The above frames are all large ones, some of them being Abbott's 16½ inch × 10 inch. Proportionate results have been obtained by other bee-keepers. The new system is making rapid strides in this neighbourhood, scarcely any bees having been destroyed this autumn. —Herbert J. Mansfield.

Hunts, Somersham, Sept. 24.—The season has now practically closed, but it has not been nearly as good as last year's. Swarms have all round been numerous, while supers, sectional and otherwise, have not, as a rule, been so well and nicely finished as was the case last year. The 'taking up' of stocks is almost over, but the brimstone system has not yet entirely gone out of vogue. I met a member of our Association yesterday and asked him if I might drive his bees again. He replied, 'I have taken them up long ago.' 'And killed the bees?' 'Yes.' 'How many stocks did you take up?' 'Eighteen.' Well, I must say I was appalled at this wholesale slaughter, and not two miles from my house! Having driven his bees previously I felt certain that seeing how preferable the modern is to the brimstone system he would never again adopt that cruel and wasteful method. There are, I find, some who, apparently, like the new system, but when they see what can be done with the condemned bees by their neighbours—yes, and their greatest friends, which they cannot or have neither time nor inclination to do themselves, they prefer to exhibit a gross spirit of selfishness and cruelty. This class I must, in fairness, add is small in numbers. The weather of the past week has been most favourable for looking through the apiary and preparing for winter. By the time this is in print most of my stocks and those of my neighbours will be snugly packed and well prepared for winter.—C. N. White, *Hon. Sec., Hunts B. K. A.*

Eliot Vale, Blackheath, Sept. 25.—It may possibly interest some one intending to commence bee-keeping in the neighbourhood of London to learn this season's result from one hive at Blackheath. I started a last year's swarm of Blacks in a ten-frame hive, which, wintering well, became very strong early in the year and threw out a fine swarm on the 24th of May: this was placed in a bar-frame hive. After six days a second swarm came out and was returned to stock; in two days' time it issued again and was once more returned to old hive, queen-cells cut out and supers placed on. The swarm was also supered on 7th June. The following quantities of comb honey were removed during the summer:—

On the	17th June,	9 lbs.	from stock	very clear and fine honey.
„	24th „	3	„ „	
„	26th July,	14	„ „	
„	„	16	„ swarm	darker honey from limes(?)
„	16th Aug.,	2	„ „	
„	„	3	„ stocks	
	Total	47 lbs.		

The supers were finally removed on 23rd Aug., leaving both hives very strong and abundantly supplied with sealed honey for the winter. The above quantity might no doubt have been doubled if the extractor had been used to obtain run honey.—Charles Poland.

Bishop's Waltham, September 27.—The last few days make one almost think that the winter is on us all at once, and evidently the bees think so too; for there is hardly a sign of one to be seen about any of the hives. It is time now that all were carefully and warmly packed ready for the winter, except any which are weak and may want feeding up.—A Hampshire Bee-Keeper.

Kirklandhill, Dunbar.—My report for this season is not very bright. At the beginning of the season honey was gathered plentifully, but at the heather I only got an average of 5 lbs. super each hive. However, the hives are in good condition for wintering. My best record for this year is 65 lbs. super from a Stewarton. Next best, 45 lbs. sections from a bar-frame. The bar-frame hives that I use are Mr. Hewitt's tea-chest hives with Abbott's frames, and any better need not be desired. I heartily thank Mr. Hewitt for his description how to make a hive out of a tea-chest.—George D. Clark.

Tynyrheol Towna, Neath, September 18th.—Our bees have done exceedingly well this summer. We had three stocks, pure blacks, from which we had two swarms, the first June 30th and the other July 2nd. Our extractions were taken as follows:—July 6th, 50½ lbs.; July 13th, 65½ lbs.; July 27th, 134 lbs.; August 7th and 8th, 172 lbs.; August 26th, 85 lbs.; total, 507 lbs. of run honey. In addition to this we have had thirteen one-pound sections, making in all 520 lbs. Further than this I have taken from the hives sufficient frames of sealed honey to provision for the winter two lots of condemned bees (taken a week ago from six skeps), leaving ample to land them into the spring.—W. Jones, jun.

Bray, Ireland, 25th Sept.—This has been a very short honey season here, the spring was very cold, and honey only began to come in quantity about June 1st, when the weather became settled, and remained so till the first two or three days of August, after which time no honey was collected by bees if they had any distance to go to heather. Yet though so short, the season has been one of the best we have had here for some years. Many strong frame hives yielding 90 lbs. or more of section-honey.—E. D'O.

Winsford, Cheshire, September 28th.—The season is over; bees are receiving their last morsel; and I find I am the happy possessor of upwards of forty prizes and five medals for 1885. Wonderful bees! But that is not all; I have 3 cwt. of honey. Wonderful bees! Last year I held my own in getting prizes, but it left me lamenting my bees. Now I have plenty of bees, and rather wish I had not so many. Such is the echo from the hives of—Geo. Stocks.

NOTICES TO CORRESPONDENTS & INQUIRERS.

J. H., *Lymington.—Queen.*—The contents of the body were smashed out in the post. Examination, of course, impossible. I could have determined if the queen had reached me living, or only recently dead.—F. C.

J. F. T.—The queen in this case should have been sent alive. I find bacilli, but whether putrefactive or pathogenic no power man possesses could determine.—F. C.

Tinto.—*Comb.*—This comb is very badly infected with *Bacillus alvei.*—F. C.

N. Munday.—Body so utterly dried up that any examination is impossible. I made an effort, but failed completely.—F. C.

J. Peacock.—*Purifying Wax.*—Try the means we suggested to you. You can, if the colour is caused by dreg entangled in it, remove it. If you will send us about four ounces we will try and improve the colour, and let you know how to treat the remainder if we succeed.

E. L.—1. *Ligurians on High Stands.*—Our correspondent 'Icardus' himself expresses his doubt as to the notion, and we can see nothing to confirm it, neither has any other correspondent done so. 2. *Reducing Hives for Winter.*—Do not remove the combs containing brood. Remove the two back combs to the back of the divider, and uncap the sealed portion of the stores; cut a small passage in the bottom edge of the divider to give access to them; keep the bees warm by covering them well. They will carry in the honey, and soon seal it.

G. P. A.—1. *Making Syrup.*—Cream of tartar is to be preferred to vinegar for 'killing the grain,' as confectioners term it. Put a teaspoonful to 14 lbs. of sugar. The same proportion of cream of tartar to sugar will do for spring feeding, only using more water. Boil until thoroughly dissolved. 2. *Camphorated Syrup.*—We will request the foreign correspondent who forwarded to us the information to furnish us with the proportions. 3. No. If you make a saturated solution at a certain temperature, a lower one will cause crystallisation. Therefore it is not suitable for autumn.

H. M. E.—1. *Unripe Honey.*—This is honey which has not been sealed by the bees, and is thinner than ripe; it is wholesome while fresh, but will ferment if kept. 2. *What is a Combination Hive?*—The term has become perverted from its original signification, and is now understood to mean a hive in which the frames run across, *i.e.*, parallel to the front, as distinguished from one in which they are parallel to the sides. 3. *Coverings.*—You will find a piece of ticking next the frames covered with a box with canvas bottom filled with cork-dust or chaff the best covering for winter. In the breeding season substitute a board for the box. Earwigs will harbour about a hive whatever cover you use.

W. H. Hughes.—1. *Dysentery attacking Stocks formed from Driven Bees.*—Your bees were so exhausted by the work imposed upon them that they became affected by some slight cause which would, perhaps, have been harmless to bees having their natural energy unexpended. 2. *Treatment of Condemned Bees.*—We have complied with your request for an article upon the subject, see p. 311.

F. A. K.—*Queenless Stock afflicted with Foul Brood.*—The case, at this season of the year, is hopeless. You had better destroy the bees and combs before your other bees rob them and spread the disease to the other hives, and thoroughly cleanse the hive with phenolated soap. 2. *Bee-parasite.*—The small insect found on the back of one of your bees is the *Braula cœca.*

J. W. B.—1. *Feeding.*—If you have bees which require feeding, you must feed even now or lose them; give thick syrup (5 lbs. sugar to the quart), remove all superfluous combs, and let there be a porous quilt to allow the escape of the vapour from the necessary evaporation by the bees before sealing. 2. *Driven Bees.*—See 'Editorial,' p. 311. 3. *Skep with no Bees or Honey.*—It had been robbed out by either bees or wasps, most probably the latter. 4. *Do Swallows eat Bees?*—Yes. We met with a case on Sunday, 20th Sept. When a stock, transferred the day before from skeps to a bar-frame hive, deserted their hive, and while filling the air preparatory to clustering, several swallows were darting among them. 5. *Removing Bees in October.*—Move them in the skeps inverted and tied down with cheese-cloth. It will then be too late to transfer this year. When you do

so, tie all the combs, except the drone-comb, into the frames.

K. G. Smith.—*Expelled Bees.*—The small cluster of bees found upon the ground, with a queen in their midst, had been driven from their hive by an attack of robbers. On examining their hive you will find that it has been robbed of its stores. There is no remedy. Preserve the combs for use another year.

A Beginner.—*Storifying Hive.*—Your three hives piled upon each other should be thoroughly examined. Take out all the frames. Those having brood, or what is termed the brood-nest, place in the centre of one box, and on the outsides of these place frames of sealed honey, filling up the box, and covering up with winter quilts and roof. Remove the other combs and boxes for your own use. An expert would quickly perform the operation.

R. B.—*Winter Passages, &c.*—Winter passages are circular holes, of about an inch, or more, in diameter, cut through the combs at equal distances from the end bars, and three or four inches from the top-bar. Their object is to allow passage for the bees from comb to comb, without being obliged to pass round the ends of the frames, where, in cold weather, they often become chilled, when in search of food. 2. Remove the unfinished combs and close up the division-boards. It is late for feeding now, but from your description we think your bees have sufficient winter store. 4. The combs should be separated and straightened, and the attachments cut away. 5. Well-made and well-painted hives require no protection from weather.

A. M. S.—The film covering the mouths of the cells appears to be the work of a species of spider.

R. White.—The insect forwarded is not the wax-moth, but the death's-head moth (*Acherontia atropos*). See p. 314).

Thomas Aitken.—*Hive Making.*—The instructions given in Root's *A B C of Bee Culture* for making hives are simple and practical, and you cannot have a better guide: it embodies the most recent discoveries and inventions. Cook's *Manual* gives an interesting account of the hives that from time to time have found favour with bee-keepers. Langstroth's *Hive and the Honey Bee* furnishes dimensions of various hives, and the hive-maker would find much assistance from its pages. We would, however, counsel you, after having consulted the works on hive-making, to adhere to those hives which have met with most acceptance from the British public.

W. H. C.—*Feeding with syrup containing salicylic acid followed by that containing phenol.*—As the two acids are chemically allied no ill effects are likely to follow their admixture.

Geo. Stocks.—The colour of the cleanest and most valuable wax is of a bright yellow, not too dark.

F. Eccles.—The present weather would not be too cold for bees in an Observatory hive for the purpose of exhibition.

Mrs. L. Wigram.—The flat straw covers mentioned in our 'Useful Hints' of last issue are to be procured from Messrs. Neighbour, Regent Street; and possibly from other dealers in bee-appliances.

J. H. Howard.—You will find your inquiry as to the arrangement termed 'the Quincunx' dealt with in our 'Useful Hints,' page 313; we reserve the remainder of your queries till next issue.

Student.—Replies to your questions are postponed to our next number.

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MY 'CLIMAX' REGULATING FEEDERS are giving universal satisfaction for Skeps and Frame Hives. 2lb. size, feeds 0 to 9 holes, 1*s.* 9*d.* each, post 6*d.*, 6 for 10*s.*, 12 for 18*s.* 1 lb. size, feeds 0 to 7 holes, 1*s.* each, post 6*d.*, 6 for 5*s.* 6*d.*, 12 for 10*s.* This is good for Cottagers, and is THE BEST and MOST PERFECT 1*s.* FEEDER IN THE MARKET.

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HONEY JARS. (Have had 3 large shipments of Jars from abroad this season, the demand has far exceeded our expectations, and have sold out of ½-lb. size, and only a limited supply of 2-lb.) 1-lb., BEST SHAPE IN MARKET, 20*s.* per gross, 11*s.* half-gross, 2*s.* 6*d.* per doz., in good case free.

BEST SCREW-CAP JARS, 30*s.* gross, 16*s.* half-gross, 3*s.* per doz., packages free.

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CORK DUST.—Best Winter Packing.—3*d.* per lb. (about 1 gallon); 7 lbs. at 2*d.* per lb. 1 lb. (less weight of bag), post free 7*d.*; 7 lb. (less weight of bag), post free 2*s.*

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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

[No. 180. VOL. XIII.] OCTOBER 15, 1885. [PUBLISHED FORTNIGHTLY.]

Editorial, Notices, &c.

BEES AND BEE-KEEPING, SCIENTIFIC AND PRACTICAL. By F. R. Cheshire, F.L.S., F.R.M.S. (London: L. Upcott Gill, 170 Strand, W.C.)—We have to call our readers' attention to the above work which is being published in monthly parts. The First Part is on our table, and from its perusal, and knowing that Mr. Cheshire has lately given much time to working out especially the anatomy of the honey-bee, we think it likely that the work will prove a valuable addition to our bee literature. Since Langstroth's work appeared more than ten years have elapsed, and in that time many problems have been solved which have not appeared in any work in the English language. There is the work of the German, French, and Italian scientists to chronicle as well as their discoveries, especially of such men as Drs. Cohn, de Planta, Grassi, and others who stand on a level with Siebold and Leuckart. There are not many of our readers who have heard of Dr. Planta's work in connexion with pollen, the cause of the different colours of wax, or of the substance of royal jelly, or of the manner in which nectar is converted into honey. Dr. Grassi's work relating to the development of the bee larva in the egg is also quite unknown. The value of Mr. Cheshire's work, we think, will be greatly enhanced if these and other discoveries are described, as we hope they will be. The improvements in the microscope of late years have enabled us to see something more than those who have gone before us did; and knowing as we do that Mr. Cheshire possesses the best instruments as well as the ability to use them, we expect his work to contain something far in advance of anything we have on bees. It is impossible to review the work at present, but as the work progresses we shall have the opportunity of criticising it more fully. Mr. Cheshire is already well known to our readers as a contributor to our pages on bees and bee-keeping, and we are sure that the subject will be ably treated by him in this new work which he has been so many years in preparing. It is well written, and the engravings, are all that may be desired; but we regret that nineteen months, at least, must elapse before the work is completed.

PEEL MEMORIAL FUND.

It is much to be desired that those who are interested in the success of this Fund should undertake to seek contributions in their own neighbourhood and among their own friends. The County Secretaries, it must be remembered, are already much burdened with the task of supplying the necessities of their Associations; and many of them, whilst sympathising deeply with the cause, express their inability, for this reason, to render any assistance. Any one who, in grateful memory of Mr. Peel, is willing to undertake this office, is requested to communicate at once with the Hon. and Rev. H. Bligh, Hampton Hill Vicarage, Middlesex.

BRITISH BEE-KEEPERS' ASSOCIATION.

The next Quarterly Conversazione will be held on Wednesday, October the 21st, at 105 Jermyn Street, London, S.W., commencing at six o'clock. An alteration in the usual method of procedure will be observed on this occasion. The usual paper will be dispensed with; in place thereof discussions will take place upon various matters of interest to bee-keepers. Mr. Otto Hehner, analyst to the Association, will bring forward some useful information in regard to experiments which he is now making with honey. Various novelties and inventions will also be on view for examination and discussion. The Secretary will be glad to receive notice from any members who may be desirous of contributing microscopical or other objects.

WEEKLY ISSUE OF THE *JOURNAL*.

In reply to the numerous communications which we have received from those who take an interest in the progress of the *Journal*, advocating its issue weekly, we beg to state that arrangements are being made to effect that object, the purport of which we hope to announce in our next issue.

THE BLIGH COMPETITION.

In the *British Bee Journal* for November, 1881, there appeared a letter from the Hon. and Rev. H. Bligh, urging the promotion of cottage apiaries, and offering to the Committee of the British Bee-keepers' Association the sum of 10*l.* to be awarded in prizes according to a scheme the main object of which was to prove to cottagers the advantages of advanced bee-culture, and to furnish them with the information which would most probably induce them to adopt the improved system. This scheme has been styled the Economic Apiaries Competition,

or, more generally, the Bligh Competition. Mr. Bligh's aim was that by the assistance of the foremost bee-keepers,—who, he hoped, would take a part in the competition,—we should have placed on record the method, cost, experiences, and results of the management of an apiary economically conducted, together with valuable comparative tests of the various hives and systems.

After much consideration the rules were framed for the governance of this scheme.

The first competition can scarcely be said to have fulfilled the intentions of the originator. The competitors were not so numerous as had been anticipated; seventeen entered their names for the competition; but the majority of these succumbed during the trial, and of those who persevered to the end several found themselves disqualified through non-observance of some of the rules, so that only four were left as recipients of the prizes.

There was also some degree of disappointment that the advocates of the skep and the Stewarton systems took no part in the competition. The advocates of these systems seemed to have no heart for the contest. It was, therefore, left wholly in the hands of bar-framists; but as each of these conducted the contest according to his respective ideas and experience, the competition proved of great educational value and of considerable practical teaching.

The diaries were exceedingly interesting; and it was easy to follow the competitors in their day-by-day work. The lessons thus acquired were of the greatest service, not only to the cottager, but to the bee-keeping community generally.

It was evident to those who had taken an interest in the scheme, that the germ of the idea was so excellent and so pregnant of beneficial results to bee-keepers, that it was considered desirable to have a repetition of it.

The rules were again considered by the Committee, and subjected to public criticism. Various suggestions were made, and several improvements were proposed and accepted. The second contest has now come to the close, and the results are given in this issue. The diaries and balance-sheets are full of useful information. We consider that the second competition has advanced considerably beyond its predecessor. The experience gained by the first had not been lost. Thirty-three entered their names as candidates, but only nine continued to the close. The profits gained by each competitor have been larger than on the first occasion. The purpose of the originator has not been without result, or his labour thrown away. There is a hope that, if it should be considered desirable to hold another competition, a larger number will take a part in it, and that the various county associations may see their way to institute similar trials of skill in their respective localities. It would furnish an interesting addition and a pleasing novelty to the ordinary routine of their operations.

USEFUL HINTS.

The cold, wet, and stormy weather experienced since our last advice, has been most unfavourable for procrastinators, scarcely a single day fit for manipulating hives having offered itself. The first suitable opportunity should be eagerly seized, by all who have hitherto delayed, for completing the winter preparation of their hives. Unbleached calico, when used over frames, should be washed, to take out the 'size.'

The ventilation of hive-covers should not be overlooked. Three one-inch circular holes, at each end of the cover, with a piece of perforated zinc tacked over them, will cause a current of air to pass over the quilting, keeping all dry and preventing accumulation of dampness and mouldiness.

Entrances may be opened now, since all fear of robbing has passed away. The advantage of wide entrances during the winter months is that there is less danger of the blocking up by dead bees, which has often caused suffocation. If narrow ones are preferred, dead bees, when accumulated, must be repeatedly removed.

Alighting-Boards are better when made to slope slightly from the hive-front, and so to prevent water lodging upon them. A very good alighting-stage is one of fine perforated zinc, on a wooden frame-work, extending along the whole front of the hive, and from eight to twelve inches in width. This may be placed horizontally—an advantage to the bees in summer and winter—since there can be no accumulation of water upon it, and the bees can pass over it with greater ease than over a sloping board, up which, when heavily laden, they ascend with difficulty, often slipping backward.

Stands, Covers, and Plinths should be examined occasionally, to ascertain that all are sound, firm, and weather-proof—able to withstand the most violent storms.

The Skep may advantageously be covered by a 'cheese-box,' minus its bottom, over which an earthenware 'milk-pan' forms an excellent roof. Or it may be enshrouded in hay-bands, bound closely around, which forms a great protection during the winter and spring months. When all preparations are completed, disturb the hives no more during the next four months.

Let well alone. Rest and be thankful. Live in hope: and allow your bees to do the same.

Storing Appliances.—The present affords an excellent opportunity for clearing up 'odds-and-ends,' of which, in our own apiary, at least, a considerable number, of all shapes and sizes, are scattered about. Feeders of all sorts should be washed, cleaned, thoroughly dried, and stowed away until spring, when the necessities of the bees will call them forth again.

Old Combs, and all broken bits, together with discarded strips of foundation, should go to the melting-pot at once—or rather to the 'wax-extractor,' for description of which see *Cowan*, p. 78.

Especially let all section-racks, cases, or crates, or by whatever name they may be called, be scraped and cleared of propolis, together with unfinished sections, although filled, or partly filled, with comb. These latter form a decided inducement to the bees to begin work, when placed in the centre of a rack, and surrounded by empty ones. It is the practice

of many apiarists, ourselves amongst the number, to complete their section-racks during the autumn and winter, even to the insertion of foundation, making them quite ready for use; tying up, as a parcel, in a strong sheet of brown paper, and storing them in a dry room or closet. The convenience and saving of time in having these in readiness at a busy period of the year, when so much other work presses, can hardly be realised until experienced. Empty 'body,' or 'brood' frames, should be similarly treated before being laid aside.

Honey and wax extractors must be thoroughly cleaned, dried, and repaired where necessary. 'A stitch in time,' &c.

Remember also the planting of bulbs—crocuses, snowdrops, &c., for the use of the bees in early spring.

And now that the necessity for 'Useful Hints' is no longer urgent until,—

> *'Taygete simul os terris ostendit honestum*
> *Pleias, et Oceani spretos pede repulit amnes,'*

to what shall we turn our attention? Shall it be permitted to us to give what appears to us *a very Useful Hint* to our masters, the Central Committee, or 'Council,' of the B.B.K.A.? As a prefatory form let us quote from the *American Bee Journal*.

In a report of the annual meeting of the Ontario Bee-keepers' Association, assembled in the City Hall at Toronto, on September 10th last, the President, Dr. J. C. Thom, remarked that: 'The Colonial and Indian Exhibition to be held at Kensington, England, next year, afforded an excellent opportunity for the display of Canadian honey.' Further on in this report we read that: 'The recommendation of the President, in regard to the exhibition of Canadian honey at the Kensington show next year, was discussed at some length, and a resolution past appointing a committee to wait upon the Ontario Government to secure their co-operation, and endeavour to make a creditable show of Canadian honey on that occasion.'

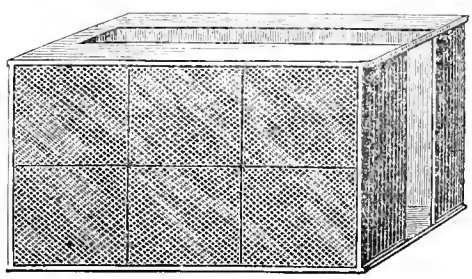
Now, we entertain no doubt whatever that other Colonies of 'Greater Britain' will follow suit—Australia, New Zealand, Tasmania, South Africa, West Indies, &c.; all honour be to them, and a hearty welcome will they all receive. Judging from the magnificent and enormous displays of honey, of the very finest qualities, at the Canadian Honey Shows and Fairs, there will be little chance of victory to other competitors. But, is the mother of these great colonies to make no effort to meet her children by a display of her own produce, or, at all events, by a collection of her own appliances, to which she may introduce and welcome her stalwart sons? Surely the occasion will be one on which she will be called upon to render hospitality with no niggardly hand. Let our 'Council' then take early action in this matter, and let those who, *wisely and justly*, keep so tight a grip on our purse-strings, provide a separate fund, if necessary, for giving a worthy reception to our brethren beyond the seas—that 'Greater Britain' upon whose development the weal or woe of this mighty Empire so greatly depends.

HONEY FAIRS.

We note that the establishment of the various Honey Companies has in no way diminished the ardour of our old friend, R. R. Godfrey, Esq., of Grantham, in assisting the bee-keepers of his county in disposing of their honey, but rather it has inspired him with new strength and fresh vigour, seeing that instead of their being only the one fair at Grantham, he has determined on instituting three, at the principal centres of Lincolnshire—Boston, Louth, and Grantham. We hope that he may be as successful on this occasion as he has been in the past, and that he may have the satisfaction of disposing of all the honey that may be consigned to his care.

STOCKS'S SHOW CRATE.

This crate, which took first prize for 'new inventions' at the Altrincham Agricultural Show, will prove of great assistance to judges of honey at shows, as it enables them to see both sides of the sections at a glance. It occupies rather more space than the ordinary section crate. It consists of two



divisions, each holding six sections, sufficient space being allowed between them to view the honey. The glass draws upward through a groove at the top and is easily and quickly taken out. These crates will hold on either side six $4\frac{1}{4} \times 4\frac{1}{4}$ or $4 \times 4\frac{1}{2}$ sections; but of course they may be made to suit any other size. When nicely painted and varnished it is a very handsome article, and would show off the sections to the best dvantage.

THE 'RUSHTON' COLLATERAL BAR-FRAME HIVE.

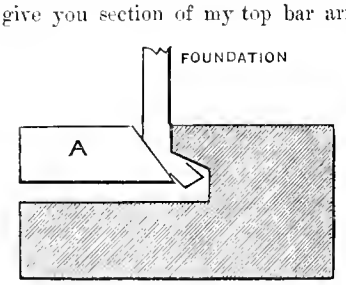
This hive has been designed by Mr. William Rushton of Felmersham, near Bedford, and is the result of a series of experiments during the last three years. The hive, single-walled and well-painted, is oblong in shape, three feet long, sixteen inches from front to back, and stands forty-two inches high. It has a very handsome appearance, and is therefore at the same time ornamental as well as useful. The lower part of the hive is fixed to the floorboard, supported by crossed legs, and consists of three compartments separated by fixed division-boards, with passages underneath, to be closed or opened as required by means of slides working from the front below the porch. The central box contains ten frames of the Society's Standard dimensions, and two dummies, hanging parallel with the front, and is used for the brood-nest, a hole in the quilt or crown-board allowing the workers

access to the upper storey during the busy season. Each of the side boxes contains six Standard-sized frames, which hang at right angles with the front, and one dummy. These lateral divisions may be used in various ways, such as queen-rearing, wintering, and for observation purposes, there being a shuttered window at either end. The upper chamber running the whole length, and fixed, is filled from end to end with shallow frames $15\frac{1}{4} \times 5\frac{3}{4}$ in size, the bars being $1\frac{1}{2}$ inches wide for ex-

tracting purposes. All the frames are wired either for strips of comb-foundation or for whole sheets, which latter is preferable. There are two dummy division-boards in the upper storey, so that any number of the shallow frames up to about twenty may be used at one time. Sections may be used in the roof above, or in place of the whole or part of the super-frames. Each lower compartment has its front bevelled entrance, with a pair of wooden slides, by which the size of the entrance in accordance with the requirements of the season may be regulated. The porch-board runs the whole length of the front and is supported by four brackets. The roof, which is entirely moveable, is gable, and is set off by a finial at either end.—W. R.

FIXING FOUNDATION TO BAR-FRAMES.

Having a most reliable method for fixing foundation in bar-frames, and believing all patents in bee furniture but indirect hindrances to the common good of bee culture, I give you section of my top bar arrangement.



Section A is a moveable strip bradded into position, giving a most reliable grip to foundation, at the same time saving use of wax-smelter or any other arrangement for exclusion of wax grubs. I shall be happy to answer any queries concerning same, believing such will be readily adopted by some who are still perplexed in foundation-fixing.—John H. Howard, *Holme, near Peterborough.*

ASSOCIATIONS.

SUSSEX BEE-KEEPERS' ASSOCIATION.

The Fourth Annual Show of the Sussex Bee-keepers' Association took place at Horsham on September 3rd, in connexion with the Horsham Flower Show. The weather was fine and all that could be desired, and there was a large gathering of visitors. There was a very good exhibition of hives and bee-keeping appliances, and the entries were numerous. S. J. Baldwin carried off the 1st prize for an excellent collection, Abbott and Overton following with 2nd and 3rd honours respectively. Abbott was awarded 1st prize for the best moveable comb hive; 2, Baldwin: 3, Overton. The same order of merit was maintained on the competition for the best 15*s.* hive. For the best 10*s.* hive: 1, Abbott Bros.; 2, Baldwin; 3, S. Sprinks, Barn's Green, Horsham. Best stock of Ligurian bees: 1, Baldwin; 3, Overton (the 2nd prize was not awarded). Best stock of English bees: 1, Overton (2nd and 3rd prizes not awarded).

The Honey Show was fair, but not so good as in past years, some of the honey being of a very dark colour and of inferior flavour. R. Norman of Chailey won the silver medal and 1st prize for his exhibit of 2-lb. sections of honey; A. Hounsom, of Bosham, and C. Lucas, Esq., of Warnham Court, taking 2nd and 3rd prizes respectively. For the best 1-lb. sections: 1, R. Norman; 2, J. Stodhart, Pagham, Chichester; 3, M. Freeman, Slinfold. Best extracted honey in 24 1-lb. or 12 2-lb. jars: 1, R. Norman; 2, S. Sprinks; 3, Lord de Blaquiere.

In the Cottager Class the following awards were made:—Best exhibit of honey in the comb: 1, and bronze medal, M. Freeman; 2, J. Reed, Lamberhurst; 3rd prize not awarded. For extracted honey: 1, Stephen Bailey, Itchingfield; 2, M. Jenner, Chailey; 3, M. Freeman, Slinfold. Best exhibit of honey in 1-lb. and 2-lb. sections: 1, M. Freeman; 2, S. Bailey; 3, G. Alce, Groombridge.

In the classes open to all comers:—Best 2-lb. or 1-lb. sections: 1, F. Woolaston, Dovers, Reigate; 2, G. Alce; 3, C. J. Lucas, Esq. Best extracted honey: 1, F. Woolaston; 2, R. Norman; 3, M. Freeman.

The Rev. F. C. Sclater, Hon. Sec. Bucks B. K. A., most kindly and efficiently acted as judge, assisted by the Rev. N. Andrewes, Hon. Sec. Sussex B. K. A.

HANTS AND ISLE OF WIGHT BEE-KEEPERS' ASSOCIATION.

Romsey.

An exhibition of hives and honey was held in Broadlands Parks, Romsey, on Sept. 9th, 10th, and 11th. The show was held in connexion with the fifth annual exhibition of the Romsey and South Hants Horse and Poultry Society, whose executive granted a respectable sum in aid of the expenses of the bee-show. The show itself was under the auspices of the Hants and Isle of Wight B. K. A., and in the unavoidable absence of the Hon. Sec., who was in Scotland, the whole of the arrangements were left in the hands of H. P. Baigent, Esq., who performed his task in the most devoted and energetic manner, and to his indefatigable exertions must be attributed the credit of making the show a great success.

The exhibits of honey were neither so numerous nor so large as might have been expected from so large a county as Hants; but what was lacking in quantity was made up in quality, there being some splendid samples of honey on exhibit. The prize for the 'largest and best exhibit of honey in any form' was taken by Mr. Thirlby, head gardener at Broadlands. This exhibit consisted of some hundreds of sections enclosed in neat cardboard cases of different colours and glazed, alternated with bottles con-

taining 1 lb. or 2 lbs. of honey. These were arranged in the form of an immense pyramid, whose corners and apex were adorned by beautiful plants and flowers from the green-house; and as this exhibit faced the principal entrance to the tent it proved a great attraction and was greatly admired.

An observatory hive, well stocked with bees, belonging to Miss Juliet La Tour, was a source of great delight to the crowds that constantly surrounded it. The exhibits of of hives and appliances were fairly good. Mr. Baldwin and Messrs. Abbott had each a splendid collection of hives and furniture; but owing to a serious attack of illness which happened to Mr. J. Abbott, and which prevented him from leaving his hotel, many of his articles were unpacked, and his entire exhibit was at a great disadvantage.

The circular tent of the Hants and Isle of Wight B.K.A. was on the ground, and at intervals during the three days lectures were given, and practical demonstrations in driving, uniting, &c., were shown by Mr. Davenport, of Stourport, Worcestershire, to large and interested audiences.

Mr. Davenport acted as judge, and the following is a list of awards:—

Class I.—Best 12 lbs. of super honey, in sections not exceeding 2 lbs. each. 1, Mr. G. Horner, The Villa, Swanmore, Bishop's Waltham; 2, Mr. H. W. West, Swanmore Park, Bishop's Waltham: 3, Mr. E. Ainsley, Swanmore Park, Bishop's Waltham. II.—Best 12 lbs. of super honey, not exceeding 1 lb. each. 1, Mr. W. Woodley, Newbury; 2, Miss Juliet La Tour, Broadlands; 3, Mr. J. Giles, Cowsfield, Salisbury; extra, Mr. W. W. Baigent, Priory Road, St. Denys, Southampton. III.—Best 12 lbs. of super honey, not exceeding 1 lb. each. (Cottage and artizan members only.) 1, Mr. W. Woodley; 2, Mr. J. Giles; 3, Mr. James Downton, Abbotts Ann, Andover. IV.—Best 12 lbs. of extracted honey, in vessels not exceeding 2 lbs. each. 1, Mr. H. W. West; 2, Mr. G. Horner; 3, Mr. H. Hughes, Longstock Manor Farm, Stockbridge. V.—Best 12 lbs. of extracted honey, in vessels not exceeding 2 lbs. each. (Cottage and artizan members only.) 1, Mr. W. G. Horner; 2, Mr. A. Rond, Warren Cottage, Sherfield; 3, Mr. W. Woodley. VI.—Largest and best exhibit of honey in every form. (Members only.) 1, Mr. F. Thirlby, Broadlands; 2, Mr. J. Giles; 3, Mr. W. C. Babb, for Mrs. Best, Red Rice, Andover. VII.—Largest and best collection of hives and appliances. 1, Mr. Baldwin, Kent; 2, Messrs. Abbott Bros., Southall. VIII.—Best and most complete bar-frame hive, price not to exceed 40*s*. 1, Mr. Baldwin; 2, Messrs. Abbott; 3, Mr. G. Forward, Newton, Christchurch. IX.—Best cottager's hive, price not to exceed 10*s*. 6*d*. 1, Mr. G. Forward; 2, Messrs. Abbott; 3, Mr. Baldwin. XI.—Best section rack prepared for putting upon the hive. 1, Mr. Baldwin; 2, Mr. G. Forward; 3, Mr. E. Ainsley, Swanmore Park, Bishop's Waltham. Extra prize for beeswax—Miss Grimes, Bramshott.

HANTS AND ISLE OF WIGHT ASSOCIATION.

Christchurch.

On Tuesday, October 6, the third annual exhibition of hives, honey, &c., at Highcliff, near Christchurch, the seat of Louisa, Marchioness of Waterford, was held as heretofore, under the auspices of the Hants and Isle of Wight Bee-keepers' Association, of which her Ladyship is a vice-president and zealous supporter. The weather, unfortunately, was unsettled, and although there was not sufficient rain to interfere seriously with the proceedings it undoubtedly prevented a great many visitors from attending, following as it did a very stormy and wet Monday. This was the more to be regretted as numerous cottagers and others had brought honey in the hope of securing purchasers, this show being very popular with the wealthy classes. Highcliff is a very beautiful mansion, sometimes termed 'Castle,' standing on the edge of the cliff, about three miles east of Christchurch, and five miles from Holmesley station. In a field between the house and the sea, from which views of the Isle of Wight and surrounding country are obtained, we found the handsome new marquee and the bee-tent of this flourishing little Association. In the latter the hon. secretary, Mr. E. H. Bellairs, of Wingfield House, delivered one of his usually clear and explanatory lectures, displaying a thorough mastery of the subject, at the same time conducting a 'drive' of bees from a full hive into an empty one. Mr. Bellairs also explained the secrets of the 'bar-frame hive' system, and alluding to the case of two Hampshire cottagers who had made 20*l*. and 26*l*. respectively last year by their bees, he explained that such results were not open to everyone, but that thrifty poor people might expect better returns for bees than from any other kind of live stock. In the marquee was displayed an unusually fine collection of honey, &c., far larger and finer, indeed, than on former years, testifying to the good results achieved by the Association. The prizes were chiefly confined to cottagers and artisans residing within a radius of six miles, it follows that the impetus given to the new system amongst the poor must have been very great. The work has been fairly started, and it remains for the public to encourage thrift among the poor by purchasing their products. We noted that the prevailing price was about 1*s*. a pound, so that honey may compete favourably with jam as a domestic economy. There was a magnificent pile of honey in sections, bottles, and tins, amounting to about 3 cwt., exhibited by Mr. Bellairs, and there was an interesting display of the new tins made by the Patent Tin Box Company. For portability, security from leakage or breaking, these tins promise to become very popular, and will remove one of the difficulties bee-keepers labour under in marketing their wares. Dr. Blake, of Bournemouth, acted as judge on the occasion, and he exhibited some interesting specimens of Egyptian bees, collected by him there during the spring of this year.

The prizes were distributed at 5 o'clock, in the great hall, at Highcliff, by Lady Waterford, who expressed a hope that each season would see more and more cottagers come forward to win prizes. Very general satisfaction was expressed by those present at the interesting and instructive exhibition as a whole. The following were the awards:—

I.—Hives.—G. Forward, Newtown, Christchurch, 1st. II.—Section honeycomb.—T. Hiscock, Winkton, 1st; E. H. Bellairs, Wingfield, 2nd; G. Ogg, Sopley, 3rd. III.—Extracted honey.—E. H. Bellairs, 1st; G. Forward, 2nd; G. Ogg, 3rd; Arthur Stephens, h.c.; W. Burgess, c. Mr. Bellairs handed on his prize, so that Forward took first prize, Ogg second, and Stephens third. IV.—(For artisans and cottagers.) Section honeycomb.—G. Ogg, 1st; H. W. Strickland, 2nd; W. Burgess, 3rd. V.—(For ditto.) Super honey in any other form.—W. Burgess, 1st; E. Watts, 2nd; H. W. Strickland, 3rd. VI.—(For ditto.) Beeswax.—W. Burgess, 1st; 2nd and 3rd not awarded. VII.—(For ditto.) Home-made hives.—Arthur Stephens, 1st; T. Hiscock, 2nd; Allen Broom, 3rd. VIII.—(For ditto.) Wasps' nests.—G. Forward, 1st; T. Hiscock, 2nd; A. Stephens, 3rd.—*From the Hampshire Advertiser.*

RUTHERGLEN FLOWER SHOW.

The second exhibition of the Rutherglen Apiarian Society was held in connexion with the Horticultural Society in the Town Hall buildings on Saturday, Sept. 12th. Notwithstanding the weather was anything but propitious there was a very successful show. The Lesser Town Hall was arranged as the bees, honey, and vegetable departments. The chief attraction in this hall was the splendid array of honey in all its different forms. Messrs W. and R. M'Nally, Glenluce, showed no fewer

than 700 lbs. of the purest honey, while our own local apiarian, Mr. E. M'Nally, exhibited a large quantity of honey as well as an observatory hive at work, and a special stand of honey as applied to food, medicines, confectionery, and beverages, such as fruit, wines, honey nectar, honey lemonade, &c. A special feature in the honey fair was the competition of honey-comb designs. The first prize design was wrought in bold letters with the words 'Aberdeen,' 'Stranraer,' and 'Dundee,' and the second award bore the motto, 'Rutherglen Show, 1885,' third award 'Beatrice,' with an ornamental star. These were *bona fide* the work of the bees themselves and show the important advance now made in honey-producing appliances and the wonderful ingenuity of these little workers. In a collection of bee-keeping appliances, Mr. M'Nally showed his cottager's hive, which has been considered by the most eminent judges a great boon to amateur apiarians; also his patent skep union which has secured the first award for inventions at Aberdeen. Mr. E. M'Nally, the secretary, exhibited his model bee farm, which the judge considered, without hesitation, as being worthy a special prize 'as showing how it may be laid out to be both useful and ornamental.' During the day a very large quantity of honey was disposed of and orders booked for further supplies. This honey fair is a new feature at our local floral fêtes, and during the past two years the greatest interest has been manifested by those who have had the honour of witnessing the marvellous effects shown by the exhibitors in their labours with the bees. The public have created in Rutherglen a market in this luxury hitherto unknown, and shows what a little energy and publicity can do.

BONNYBRIDGE ANNUAL HORTICULTURAL SHOW.

This show was held within the beautiful grounds of Wheatlands, kindly granted by Mr. George Ure, on the afternoon of Saturday, 5th September. There was also space given for an apiarian display. The Caledonian Apiarian Society kindly lent their manipulating tent for this occasion. The ease with which Mr. Sword and Mr. Johnstone handled the bees quite astonished the natives. Mr. Johnstone exhibited an Observatory Hive, which was a great source of attraction, and, it is hoped, will be the means of doing much good in the district in coming years.

DUNGLASS HORTICULTURAL SOCIETY.

This Society held its annual Show on Saturday, 12th September, in the public Hall, Cockburnspath. The exhibition of honey, which has been associated with the show for some years, seems to be yearly growing in importance. The present season has not been so highly favourable as last year for honey-gathering, but generally bees have done fairly well, and the quality of the honey is very satisfactory. Mr. James Pringle, clothier, Cockburnspath, who has long been an extensive and successful bee-keeper, again took the first honours with a much-admired super. Mr. Pringle exhibited twelve tops of the Stewarton hive, as well as several sectionals, and fourteen jars of run honey. The tops, remarkably well filled, contained from 15 lbs. to 20 lbs. each of beautiful honey. Mr. Pringle has already this season taken 400 lbs. of honey from his hives, and expects to lift 100 lbs. more ere the honey harvest closes. The other exhibitors of honey were Mr. Thomas Laing, Cockburnspath (who took second honours), and Mr. James Renton, both of whom also showed tops and sectionals well filled with the finest honey.

BLIGH COMPETITION, 1884-85.

The results of this Competition, which closed on August 31st, show that:

Out of 33 who originally entered 14 only continued on to the second year, and of this number not more than 9 have held on to the finish, all of whom adopted the system of bar-frame hives. The 9 swarms, which weighed in the aggregate $30\frac{3}{4}$ lbs., have during the 15 months of the Competition collected no less than 1170 lbs. of honey, or an average of 130 lbs. per swarm, and at the finish leave 19 well-established stocks, hired and ready for wintering, in addition to which 1 swarm has been sold.

The value of the honey as settled for competition purposes is, according to the balance-sheets, in excess of its present market-price, but putting a value of (say) 9*d.* per lb. on both section and extracted honey, we still have a sum of 43*l.* 17*s.* 6*d.*, received for honey, or 4*l.* 17*s.* 6*d.* per swarm, besides a very considerable increase in the value of the stock and appliances.

The weight of honey produced cannot fail to prove the success and skill of the competitors, and it is hoped will encourage many to try their hand at bee-keeping on modern principles.

The balance-sheets as prepared by the several competitors show an exaggerated money profit, owing to the excessive nominal value put on the honey, and also to the over-estimate of value which has been set upon most of the stocks in hand. The judges have not, therefore, accepted such balance-sheets and values as final, but have, after most careful consideration and comparison of the different accounts, reduced them all as far as possible to one and the same scale, and have given their award of prizes as follows:—

1st prize.....	6*l.*	.....	T. Owen.
2nd „	5*l.*	.....	W. Woodley.
3rd „	4*l.*	.....	F. Woodley.
4th „	3*l.*	.....	W. Seabrook.
5th „	2*l.*	.....	H. E. Roberts.
6th „	1*l.*	.....	J. Arnold.

The following table shows in comparison the results gained by the different competitors, as shown by their several diaries:—

Name.	Weight of Bees in lbs.	Total Expenses.	Honey Taken.			Swarms Sold.	No. of Stocks left.	Valuation of Stocks.	Balance Sheet Profit.
			Sections. Nominal Weight in lbs.	Extracted. Weight in lbs.	Total number of lbs.	Weight in lbs.			
		£ s. d.						£ s. d.	£ s. d.
Mr. J. Hedding ..	$4\frac{3}{4}$	3 19 7	56	56	112	..	2	2 10 0	5 15 $7\frac{1}{2}$
„ F. Woodley ..	3	2 1 6	73	63	136	..	2	5 6 6	12 3 3
„ T. Owen.....	4	3 9 4	134	6	140	$4\frac{1}{2}$	5	6 7 6	14 3 2
„ W. Seabrook ..	4	2 5 11	..	150	150	..	1	3 4 4	9 0 11
„ J. Arnold	2	2 2 1	74	12	86	..	2	4 5 0	8 15 9
„ A. Cooper	$4\frac{1}{2}$	2 10 0	18	60	78	..	2	2 9 0	4 11 6
„ W. Woodley ..	$2\frac{1}{2}$	1 17 9	156	28	184	..	1	3 8 0	14 14 7
„ H. E. Roberts	2	2 10 6	1	158	159	..	2	3 5 6	9 5 11
„ T. H. Cudd ..	4	2 10 2	60	65	125	..	2	2 4 4	7 13 5

Mr. J. Hedding, Sawstone, Cambridge, took 34 1-lb. sections and extracted 5½ lbs. in 1884, and wintered his bees (divided September 10th) as two stocks. March 18th, began to feed. April 15th, spread brood. April 21st, spread brood in both hives. April 28th, put in frames of foundation. May 7th, do. May 23rd, little progress made. May 28th, put in two frames of foundation into each hive. June 9th, put super on No. 1. June 18th, No. 2 hive swarmed, cut out queen-cells and returned swarm. June 29th, put on doubling box and added frames to No. 2. July 6th, took 6 sections. July 7th, extracted 20 lbs. August 4th, took off 14 sections. August 15th, 8 sections taken off. August 22nd, took off doubling box and extracted. August 26th, extracted from No. 1.

Valuation of stocks certified by Secretary of the Cambridge B.K.A. Two hives, *1l.*; 20 frames of comb, with brood on 7 combs, bees, &c., but little honey, *16s.*; doubling box and 10 combs, *9s.*; sundries, *5s.*

BALANCE SHEET.

	£	s.	d.		£	s.	d.
Capital	2	0	0	As per last Account ..	3	4	8½
36 Sections	2	11	0	Sugar	0	4	7
10½ lbs. Extracted ...	0	11	4½	Foundation, &c.	0	10	3½
22 Sections in hand ...	1	13	0	Capital refunded ...	2	0	0
46 lbs. Extracted do. ..	2	9	10	Balance profit... ...	5	15	7½
Valuation of Stock ...	2	10	0				
	£11	15	2½		£11	15	2½

Mr. F. Woodley, Chilton Steventon, Berks, took in 1884 38 sections and 8 lbs. extracted, and wintered his bees as one stock. April 1st–21, 1885, fed. April 20th, spread brood. May 1st–8th, fed. May 18th, gave frame of foundation and fed. May 29th, removed feeding bottle and put on crate of 21 1-lb. sections. June 2nd, bees well up in sections. June 4th, bees swarmed; put them, 4 lbs. weight, in hive made of tea-chest on 2 frames of brood from No. 1 hive and 5 frames foundation; cut all but one queen-cell out of No. 1. June 6th, gave another frame. June 8th, gave another frame. June 13th, had fed up to this date; found all frames worked out; put on crate of 14 1-lb. sections. June 15th, No. 2 working well in sections. June 18th, No. 1 swarmed again, returned swarm. June 21st, took off 14 sections from No. 2 quite finished, and put on 21 1-lb. sections, and took 7 sections from No. 1, leaving 14 still unfinished. June 27th, two queens thrown out of No. 1. June 29th, extracted 15 lbs. from No. 1, and took off crate of 14 unfinished sections. July 8th, No. 1, bees killing drones. July 15, sealed honey and brood in No. 1. July 17th, removed crate from No. 2; 14 sections finished, extracted from remaining 7 and the 14 off No. 1, 8 lbs. July 24th, extracted from No. 2, 6 lbs. August 13th, extracted 6 lbs. from No. 1, and 20 lbs. from No. 2; fed till August 30th.

Value of stock as certified by the Secretary of the Berks B.K.A. Two hives, &c., *14s. 9d.*; 6½ lbs. of bees, *1l. 6s.*; 9 lbs. brood, *18s.*; 40 lbs. honey, *2l.*; comb, *7s. 9d.*

BALANCE SHEET.

	£	s.	d.		£	s.	d.
As per last Account ...	5	5	8	As per last Account ...	1	6	7
35 1-lb. Section	2	12	6	Tea-chest Hive	0	4	8½
55½ lbs. Extracted ...	3	0	1½	Foundation, Sugar, &c.	0	10	2½
Valuation of Stock ...	5	6	6	Capital refunded ...	2	0	0
				Balance profit	12	3	3½
	£16	4	9½		£16	4	9½

Mr. T. Owen, Corsham, Wilts, took 27 lbs. in sections and 6 lbs. extracted in 1884, and wintered his bees as two stocks. March 6th, 1885, spread brood in both stocks. April 17th, spread brood in both stocks. May 11, made artificial swarm, 2 frames with bees and queen-cell from No. 1, and 2 frames with bees from No. 2. Spread brood in No. 1 and 2. May 26th, put on 14 1-lb. sections on both No. 1 and No. 2. May 29th, put on 14 1-lb. sections on both No. 1 and No. 2. June 2nd, put on 14 1-lb. sections on both No. 1 and No. 2. June 6th, as No. 1 seemed likely to swarm cut out all queen-cells but one, and took queen with 2 frames and made new swarm (No. 4), and added to it 2 frames with foundation. Spread brood in No. 3, where young queen was laying. June 23rd, natural swarm, 4¼ lbs., came from No. 1 which I sold. This swarm came out at 10.30 a.m., and remained clustered on a pole till 7.30 p.m. before I found it. Took off 24 1-lb. sections. June 25th, natural swarm came from No. 2; put them on 6 frames of foundation (No. 5). Took 40 1-lb. sections. July 1st, put 21 sections on No. 3. Took 18 sections off No. 1, and 2 sections from No. 2. August 8th, took 21 sections from No. 3.

Valuation of stock certified by the Secretary of the Devon and Exeter B.K.A. No. 1 hive, 8 frames, strong with bees, about 20 lbs. honey, *1l. 10s.* No. 2 hive, 9 frames, very strong, about 30 lbs. honey, *1l. 12s. 6d.* No. 3 hive, 6 frames, fair condition, *1l. 1s.* No. 4 hive, 4 frames, good lot of brood, excellent queen, very clean combs, *1l. 3s.* No. 5 hive, 7 frames, good stock, very strong with bees, *1l. 1s.*

BALANCE SHEET.

	£	s.	d.		£	s.	d.
As per last Account	1	6	6	As per last Account ...	1	18	7
Swarm sold	0	18	0	Three Hives	0	15	0
97 lbs. Sections	7	5	6	Sundries	0	15	9
Sections undercharged	0	15	0	Capital refunded	2	0	0
Valuation of Stock ..	6	7	6	Balance profit	14	3	2
	£19	12	6		£19	12	6

Mr. W. Seabrook, Sutton, took in 1884 33 lbs. of extracted honey, and wintered his bees as one stock on 6 frames. Feb. 28th–May 3rd, fed slowly by one hole. April 26th, gave back 1 empty comb. May 3rd, gave 2 more empty combs. May 9th, gave back 1 comb. May 16th, doubled hive, putting five frames with brood into doubling-box, replacing them with 4 frames of comb placed alternately with brood in lower box. May 23rd, gave frame of foundation to upper box. May 30th, extracted 8 lbs. from 3 frames. June 5th, put frame of foundation in upper box, extracted 10 lbs. from 4 frames. June 13th, extracted 27½ lbs. from 7 frames. June 20th, extracted 14½ lbs. from 4 frames, and exchanged 2 frames brood from lower box for 2 frames of comb from upper, added another frame of foundation. June 27th, extracted 9 lbs. from 3 frames, bees still crowded, put in another frame of foundation. July 4th, extracted 14½ lbs. from 4 frames. July 18th, extracted 13½ lbs. from 3 frames. July 27th, extracted 12 lbs. from 4 frames. August 15th, extracted 7½ lbs. from 3 frames.

Value of stock as certified by the Secretary of the Surrey B.K.A. Hive, &c., *13s.*; 6 lbs. of bees, *9s.*; 18 frames of comb, *13s. 6d.*; 22½ lbs. of honey, *1l. 4s. 4d.*; sundries, *4s. 6d.*

BALANCE SHEET.

	£	s.	d.		£	s.	d.
Per last Account ...	3	16	3½	As per last Account ...	2	0	0
116½ lbs. Extracted ...	6	6	2½	Foundation, &c.	0	5	11½
Valuation of Stock ...	3	4	4½	Capital refunded ...	2	0	0
				Balance profit... ...	9	0	11
	£13	6	10½		£13	6	10½

Mr. J. Arnold, East Molesey, Surrey, took no honey in 1884, and wintered his bees as one stock. March 31st, took out 4 bars, from which he extracted honey, and fed it back through 1 hole, and fed till April 13th; on that day put back 1 bar. April 15th, put back another bar. April 17th, put back another bar. April 20th, put back another bar. April 21st, bees hanging out, put on 7 1-lb. sections. May 7th, bees not in sections, gave ½ pint of syrup. May 13th, divided stocks, putting 2 bars with brood and queen and 4 bars with strip of foundation in back part of Twin hive, and then turned it right about back to front. Fed both stocks. May 14th, gave another bar to swarm, No. 1. May 16th, fed original stock, No. 2. May 20th, found queen-cells in No. 2, fed No. 2. May 21st, gave another bar to No. 1. May 22nd, fed both stocks. May 25th, put 14 1-lb. sections on each. June 9th, took off 7 full sections from No. 1, and replaced with empty ones. June 13th, took off 1 section from

No. 1, replaced, took out and extracted 2 lbs. from bar in No. 2, and replaced with bar of foundation. June 15th, took off 4 sections from No. 1, replacing with empty ones. June 17th, gave bar and foundation to No. 1. June 18th, put 7 more 1-lb. sections on No. 1. June 20th, took off 5 sections from No. 2, replacing with 12 empty ones. June 24th, took off 3 sections from No. 1, replacing with empty ones. June 27th, put on 7 more empty sections on No. 1. July 6th, took off 1 section from No. 1, and 2 from No. 2, replacing empties. July 11th, took off 2 sections from No. 2, replacing empties. July 14th, took off 5 sections from No. 1, and 2 from No. 2, replacing empties. July 16th, took off 2 sections from No. 2, replacing empties. July 17th, took off 3 sections from No. 1, replacing empties. July 18th, put on 7 more sections on No. 1. July 20th, took off 14 sections from No. 1, replacing empties. July 21st, took off 11 sections from No. 2, replacing empties. July 25th, took off 3 sections each from No. 1 and No. 2, replacing empties. July 31st, took off from No. 1 3 full, 6 unfinished, and 19 empty; from No. 2 2 full, 8 unfinished, and 4 empty, leaving 7 unfinished on each. August 3rd, extracted 3 lbs. each from No. 1 and No. 2. August 9th, took off all sections, 3 on No. 1 and 1 on No. 2 being full, fed gently till 31 August.

Value of stocks certified by Nominee of Surrey B.K.A. Hive, 12*s.*; bees, 7¼ lbs., 22*s.*; 17 frames, one eighth filled with brood, remainder honey, 66 lbs., 2*l.* 8*s.* 6*d.*; sundries, 2*s.* 6*d.*

BALANCE SHEET.

	£	s.	d.		£	s.	d.
As per last Account ...	2	0	0	As per last Account ...	1	11	1½
74 Sections sold	5	11	0	Sections, food, &c. ...	0	10	11½
12 lbs. Extracted sold ...	0	13	0	Capital refunded ...	2	0	0
3 Sections unsold	0	4	6	Balance profit	8	15	9
4 lbs. Honey unsold ...	0	4	4				
Valuation of Stock ...	4	5	0				
	£12	17	10		£12	17	10

Mr. A. Cooper, Normanton, took in 1884 14 lbs. of extracted honey, and wintered his bees as one stock. March 2nd–May 29th, fed slowly. April 17th, put American cloth over frames. May 29th, gave back 2 combs. June 15th, gave back 2 more combs. June 17th, put on crate of 18 sections. July 14th, took off 18 full sections, extracted 19 lbs. from 10 frames. July 28th, extracted 27 lbs. from 12 frames. July 30th, divided by placing 8 frames of brood and bees in new hive (No. 2), and replacing with 5 frames of foundation in No. 1. August 25th, removed 2 combs from No. 1, and 1 comb from No. 2, leaving 6 frames in each.

Value of stock as certified by the Secretary of the Derby B.K.A. Two hives, 17*s.* 6*d.*; bees, about 5½ lbs., 1*l.* 2*s.*; combs, 7*s.* 6*d.*; sundries, 2*s.*

BALANCE SHEET.

	£	s.	d.		£	s.	d.
As per last Account ...	2	15	2	As per last Account ...	1	16	10
1 Section	0	1	6	Hives, &c.	0	8	9
3 lbs. Extracted	0	3	3	Sundries	0	4	4½
Uncappings	0	0	6	Capital refunded ...	2	0	0
17 Sections in hand ...	1	5	6	Balance profit	4	11	6½
43 lbs. Extracted do. ...	2	6	7				
Valuation of Stock ...	2	9	0				
	£9	1	6		£9	1	6

Mr. W. Woodley, World's End, Newbury, took 72 sections, and extracted 13 lbs. in 1884, and wintered his bees as one stock. April 11th–May 25th, fed slowly. May 11th, brood on all combs except the outside ones. May 30th, put on crate of 21 1-lb. sections. June 4th, put another crate of 21 sections underneath the first. June 12th, swarmed, returned swarm, captured and destroyed queen. June 14th, swarmed, late swarm returned of its own accord. June 18th, took off crate of 21 full sections, put on another under that left on. June 24th, swarmed, swarm returned, cut out 10 queen-cells, put in 2 frames of foundation, took off 21 sections well filled, put another crate under that left on. July 10th, took off crate of 21 perfect sections, and put outside sections of the other crate into the centre, still leaving one crate on. July 26th, took off crate of 21 sections all well filled, but some a little dark. August 19th, extracted 16 lbs. from 4 frames.

Value of stock certified by Secretary of the Berks B.K.A. Hive, &c., 11*s.*; bees, 5 lbs., 1*l.*; brood, 1 lb., 2*s.*; honey in hive, 30 lbs., 1*l.* 10*s.*; comb, 5*s.*

BALANCE SHEET.

	£	s.	d.		£	s.	d.
As per last Account ...	8	1	0	As per last Account ...	1	10	0½
84 Sections	6	6	0	Foundation, &c.	0	7	8¼
16 lbs. Extracted	0	17	4	Capital refunded ...	2	0	0
Valuation of Stock ...	3	8	0	Balance profit... ...	14	14	7¼
	£18	12	4		£18	12	4

Mr. H. E. Roberts, Gosmore, Hitchin, took in 1884 32½ lbs. of extracted honey, and wintered two stocks in his Twin hive. April 9th, 1885, commenced feeding. May 2nd, finding No. 2 queenless put in frame of brood from No. 1. May 5th, introduced a queen into No. 2. May 13th, can find no queen, and fear she is killed. May 27th, put 5 new frames with foundation in No. 1, taking out 2 frames of brood and put them in No. 2. After all found brood in No. 2, so queen could not have been killed. June 4th, put 5 new frames in No. 1, and transferred 2 frames of brood to No. 2. June 10th, put sections on No. 2. June 12th, No. 1 swarmed, put back swarm, cutting out all queen-cells but one. June 18th, extracted 2 frames of honey out of No. 1. June 22nd, extracted 3 frames of honey from No. 1. June 24th, extracted 3 frames of honey from No. 2. June 26th, extracted 5 frames of honey from No. 1. June 27th, No. 2 swarmed, put back after removing queen. June 28th, No. 2 swarmed again, put back again after removing young queen. July 2nd, extracted 2 frames of honey from No. 1. July 4th, extracted 5 frames of honey from No. 1. July 9th, extracted 3 frames of honey from No. 2, and 1 frame of honey from No. 1. July 15th, extracted 5 frames of honey from No. 1. July 17th, extracted 5 frames of honey out of No. 2; he thinks he must have lost a swarm from No. 2. July 25th, took off sections from No. 2, and also extracted 2 frames of honey; extracted 6 frames of honey out of No. 1. Both hives seem to be queenless. July 29th, put old queen which came out of No. 1 back into No. 2. July 31st, extracted 4 frames of honey out of No. 1. August 1st, extracted 2 frames of honey out of No. 2. August 6th, extracted 8 frames of honey out of No. 1. August 8th, put young queen, which came out of No. 2, into No. 1. August 16th, saw brood in No. 1. August 26th, saw brood in No. 2.

Value of stock as certified by the Secretary of the Herts B.K.A. Twin hive, 6*s.*; two stocks of bees on 11 frames, 1*l.* 17*s.* 6*d.*; 21 empty frames, crate, sections, &c., 1*l.* 2*s.*

BALANCE SHEET.

	£	s.	d.		£	s.	d.
As per last Account ...	3	15	3	As per last Account ...	1	11	9
125 lbs. Extracted ...	6	15	8½	Sundries	0	18	9
Valuation of Stock ...	3	5	6	Capital refunded ...	2	0	0
				Balance profit	9	5	11½
	£13	16	5½		£13	16	5½

Mr. T. H. Cudd, Stately, Chislehurst, took 10 sections and 13½ lbs. extracted in 1884, and wintered his bees on 5 frames in one hive. April 15th, added 2 frames. April 22nd, added 2 more. May 4th, put frame of sections at back of hive. May 20th, took out frame of sections, replaced them, and put on crate of sections. June 2nd, bees swarmed; put them, 4 lbs., into bar-framed hive. June 4th, put super on No. 2. June 17th, took 10 sections from No. 1. June 26th, took 7 sections from No. 2. June 30th, extracted 5½ lbs. from No. 1, and 17 lbs. from No. 2. July 9th, extracted 14 lbs. from No. 1, and took 5 sections from No. 2. July 20th, took 5 sections from No. 2. July 28th, took 7 sections from

No. 2, and 4 from No. 1. August 4th, took 2 sections from No. 2. August 14th, took 7 sections and extracted 12 lbs. from No. 2, and 5 sections and 4 lbs. from No. 1.

Valuation of stock countersigned by Mr. G. Twitchen. Two hives, 15*s.* 6*d.*; 20 combs, with honey and brood, 15*s.*; 6 lbs. bees, 12*s.*; sundries, 1*s.* 10*d.*

BALANCE SHEET.

	£	s.	d.		£	s.	d.
As per last Account ...	3	8	3	As per last Account ...	1	16	10½
50 Sections	3	15	0	New Hive, &c.	0	13	3½
52 lbs. Extracted	2	15	0	Capital refunded ...	2	0	0
Wax	0	1	0½	Balance profit	7	13	5½
Valuation of Stocks ...	2	4	4				
	£12	3	7½		£12	3	7½

Mr. A. J. King, who has for twelve years edited the *Bee-keeper's Magazine*, has retired. The new editors are Messrs. J. Aspinwall and W. B. Treadwell.

The Kansas Bee-keeper, of which five yearly volumes have appeared and which started as a weekly from the 1st January last, has ceased to exist since July last. It had to be given up for want of patronage.

A SCOTCH BEE CASE.—In the Sheriff's Small Debt Court, here, October 7th,—before Sheriff Nicholson—James Allison, Glenluce, sued Andrew Lochrie, gamekeeper, Cairntop, and Archibald M'Kie, grocer, Kirkcowan, for the sum of 1*l.*, the value of bees, belonging to the pursuer, taken possession of by the defenders. Mr. Rankin appeared for the pursuer, and Mr. M'Fadyean for the defenders. From the evidence it appears that the pursuer, who is in rather feeble health, resides with his mother, Mrs. Allison, in Glenluce. He was from home on the morning the bees hived, and his mother, who is an old woman, was watching the bees. She saw they were working as likely to hive. Her garden, in which the bees were, runs along the side of the public road. She went into the house and was there for perhaps ten minutes, and when she came out she saw the defenders standing on the road, besides a horse and cart. Her bees during the time she was in the house had come off, and the two men were putting them into a skep. She went forward to the men and told them the bees were hers. They said she was too late of coming, and she replied she was here now. She did not see the bees leave the skep, but she knew they had come out of her garden. The defenders stuck to them and took them with them. Other evidence was given to show that when the bees were being skepped, there were bees still flying backward and forward between this hive and the skep in the garden, and that it was the habit of bees when they came off if they alighted in the neighbourhood of the place to keep coming and going in this way. There were no other bees hived in Glenluce that day. The evidence of the defenders was to the effect that they were passing into Glenluce when they discovered this hive of bees hanging to a branch on the side of the road. They were on the opposite side of the road from Mrs. Allison's garden. There was no one there looking after them: and they considered they had a right to take possession of them. M'Kie remained with the bees and Lochrie went for a skep. After they had got them into the skep and were putting the cloth over them, Mrs. Allison came and looked over the bank and said, 'Men, these bees are mine.' M'Kie replied that she was too late of coming and that she had been rather careless about her bees. He was detained about half an hour over the bees. Mr. M'Fadyean contended that according to the law, as laid down by Erskine, when bees hived and got away they recovered their natural liberty, and became the same as wild birds, the property of the person who first captured them again. The Sheriff said he had a great respect for Erskine, and would be sorry to upset the law of Scotland, but he would be still more sorry to allow an old woman's bees to be taken in this way within five yards of her own door, because they had swarmed when she was absent for a few minutes, and she had not instantly pursued them. He thought this was a barefaced case of appropriation of another person's property. It was a case that should never have been defended. For two respectable men to appropriate another's bees in this way was disgraceful. It was all very well to quote an old law that when bees got away they became wild; but he could not hold that they had got away or were wild, so long as they were within a few yards of the house they belonged to. He gave decree for 1*l.* with expenses. —*Galloway Advertiser.*

THE DROWNING BEE.—Mr. Spurgeon writes as follows in the September number of the *Sword and Trowel*:—A poor bee had fallen into the pond, and was struggling as well as her failing strength would allow. We seized a pole, and placed the end of it just under her. She took firm hold, and we lifted the pole and the bee. A little while was spent in drying herself and pluming her wings, and then our worker made a straight line for the hive, and doubtless was soon at her daily task rewarding us with honey. May not many a human worker be found in a sinking condition? A little sensible help might save him. Who will give it? He who does so shall receive the blessing of him that is ready to perish. Poor hearts are often in deep despondency, sinking for lack of a sympathetic word. Do not withhold it. Rescue the perishing. Be on the watch for despairing minds; if no other good comes of it, you will, at least, be more grateful for your own cheerfulness. But good *will* come of it in unexpected instances, and it will be heaven's music in your ears to hear sighs turned into songs.

TESTING BEESWAX.—When beeswax is chewed it should have no disagreeable taste and must not stick to the teeth. In the adulterated wax, the nature of the foreign material can generally be detected by the taste; the addition of fat can generally be readily detected. If it sticks to the teeth, the presence of resin may be assumed. A simple method of detecting the presence of fat in wax consists in melting it, and placing a drop on a piece of woollen cloth. After it is perfectly cold and solidified, pour on a few drops of 90 per cent of alcohol and rub the cloth between the hands. The wax will be converted into dust, and will easily separate from the cloth if it contains no fat, and will leave no stain; when it contains fat it will leave grease-spots.

ANALYSIS OF THE EXCRETA OF BEES.—Various opinions are held respecting the composition of the excrement of bees. While most persons regard the contents of the rectum as composed of the indigestible remains of pollen, Dr. Alefield recently declared them to be uric acid. An analysis of the excreta has shown the following ingredients:—1. *Remains of Pollen.*—I boiled the excrement in caustic potash lye, slightly diluted. After filtering, I washed the residuum in hot dilute muriatic acid. What was left after again filtering would, from its insolubility, be only the remains of pollen. It appears, under the microscope, like an indistinctly granular mass. 2. *Uric Acid.*—I immersed the excrement in concentrated sulphuric acid, in which uric acid remains undecomposed. After carefully deeanting the liquid from the resulting carbonaceous mass, I added water, and then washed the precipitate matter in water. I now added one drop of *liquor ammonie* and one drop of muriatic acid. On heating, the mass assumed a purplish hue—the characteristic of uric acid. 3. *Hippuric Acid.*—I boiled some excrement in caustic potash lye. After filtering, I added dilute muriatic acid, and obtained a precipitate which proved to be composed of urie and hippuric acid. According to an approximate estimate, the excreta of bees consist of about one-third uric and hippuric acid, and the rest of indigestible portions of pollen.—*Canada Farmer.*

Correspondence.

**** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

RACES OF BEES.

I see by a report in the *American Bee Journal* that at the annual meeting of the Ontario (Canada) Bee-keepers' Association, the President, Dr. J. C. Thom, advocated the establishment of an experimental bee-farm in which the various races of bees could be thoroughly tested. 'After having the Asiatic races inflicted upon us,' he said, 'we are now threatened with the Carniolan.' He expressed the opinion that the Italian race should be cultivated as the best bee America has yet obtained.

The Rev. W. F. Clarke said personally he thought the Cyprians had been an injury. He had seen such a man as D. A. Jones, who boasted of his ability to handle all sorts of bees without veil or gloves, run into the bushes on opening a Cyprian hive; and smoke even from a Bingham 'Conqueror' had no effect upon them. He was of opinion that a dash of Syrian or Holy Land blood was a decided improvement to the best Italians. He had given every race of bees that had come before the public a fair trial, and he had obtained a Carniolan queen for that purpose.

Mr. D. A. Jones some time ago, assisted by Mr. F. Benton, went to Cyprus and to Palestine for the purpose of obtaining pure Cyprians and other races of bees, and has since established apiaries in several of the islands on the Georgian Bay (where no other bees were to be found), and in this way he has been able to breed pure queens of the various races.

Mr. Jones said, 'In his own apiary *he was weeding out all trace of the Cyprian race*, and breeding from best Italians, with, perhaps, a third of Syrian or Palestine crossing. He found that the best "business bee" for this country' (Canada).

After this admission from a gentleman who was at the expense and trouble of travelling from Canada to Europe and Asia and back to procure Cyprians, it will be quite sufficient corroboration of the experience of those who have had this vicious race to warrant their discarding them altogether in favour of Italians, Carniolans, and black bees.—JOHN M. HOOKER, *Sevenoaks*.

BEE-KEEPING IN SOMERSET.

In the spring of 1883 I was requested by the late Rev. H. R. Peel to hold (as he called it) a 'Bee Mission' in Somerset, with a view to the formation of a County Bee-keepers' Association. A provisional committee was formed, and it was arranged that I should give an evening lecture at five different centres, visiting and assisting bee-keepers during the day. The last place visited was Wells, where Mr. Peel met me. The Lord Bishop of the diocese presided at my lecture in the Town Hall, and most kindly consented to become the President of the Association, in which he has ever since taken much interest.

Last year, at the invitation of Mr. F. J. Clark, the district hon. sec., I paid a second most pleasant visit to Street near Glastonbury; and at the end of last month he again invited me, bee work in Wilts having made it impracticable earlier in the season, or to spend more than three nights under his hospitable roof. I believe I am right in saying that all the members of the firm of C. and J. Clark and Co. are practical and advancing bee-keepers, and are doing their best to encourage those in their employ (and other neighbours also), in the pursuit, both by their own example, and by helping to procure from the best makers good hives and other appliances for all who desire them. Mr. F. J. Clark met me at the station on September 29, and immediately after lunch the visitation of bee-keepers commenced. Then a pleasant drive to Butleigh, where Mr. Clark had arranged for me to do some 'expert's' work, and give a lecture in the schoolroom, at which the Rev. C. Anderson, County Hon. Sec., attended to advocate the claims of the Somerset B. K. A., and some new members were enrolled. The next day expert work went on busily from 8.30 a.m. till 5 p.m.; then a beautiful drive through Glastonbury and Wells to Wookey Hole, to dine with J. Hodgkinson, Esq., J.P., who kindly took the chair at my lecture in the schoolroom.

On Thursday morning another visit was paid to Butleigh at the request of some who had attended the lecture on Tuesday, to put stocks in order for winter; but heavy showers much impeded the work. In the evening a third lecture was given at Street in the Friends' meeting-house, (Captain Butt, J.P., in the chair), attended by most of the local bee-keepers, many of whom begged for my help before leaving the next day.

Bee-keeping has advanced most satisfactorily in Street and the other villages I visited on this occasion; and if in other districts Mr. Anderson has such an able and energetic assistant hon. sec. as Mr. F. Clark, he is much to be congratulated. Altogether I visited fourteen bee-keepers owning seventy-three stocks in bar-frame hives, and four in old-fashioned skeps. Many of the frame-hives were good ones by our best makers (though some of a very ancient type), but far too many too roughly made for satisfactory working. *Till a man has tried it*, he never would believe the saving in time, trouble, and sometimes temper, with thoroughly well-made hives and *accurately fitting frames*—it *amply* repays extra cost, when 'time is money' at all events.

I was rather sorry not to see any attempt at working sections on skeps by those who cannot afford (or *will* not) frame-hives. Some cottagers in my own neighbourhood have done remarkably well on this plan; some of the best sections I have seen this season were worked on a skep belonging to a cottager,—40 lbs. from one hive, 36 from another, 12 2-lb. sections from a third. Most of the stocks I examined were strong and well provided for winter, and the honey of first-rate quality. Without exception, all I visited seemed anxious to gain all the hints I could give them, and also to improve in bee-culture (for which, in many cases I had ample room). With a little encouragement and advice from the hon. sec., I fancy several promising candidates for third-class expert certificates might be secured next year from Street and the neighbourhood.

Messrs. Clark employ in their factories some 1200 hands, whose welfare is evidently never overlooked by them, but most generously attended to, as is shown by the neat and substantial workmen's dwellings, clubs, coffee-rooms, co-operative stores, and school of art, all originated by them; and, lastly, by the splendid pile of buildings now erecting by one of the firm, which will be opened in the course of this month as a Workmen's Hall and Institute.

My visit was a most pleasant one, and I hope it may lead to greater care and neatness in the apiary, and result in many joining the Association, who as yet do not seem to realise the advantages of membership so much as could be desired.

Bee-keeping in this district has increased and improved so much since the formation of the Association (only two and a half years ago), considering the little time that Mr. F. Clark can devote to it, that I feel bound to send this report to the *B. B. J.*, for the encouragement of other district secretaries.—W. E. BURKITT, *Hon. Sec. and Expert of Wilts B. K. A., Buttermere Rectory, Hungerford, Oct.* 8, 1885.

BEE-KEEPING IN MERIONETHSHIRE.

Being a bee-fancier, and having kept bees for ten years, perhaps some of your readers would like to know what progress bee-keeping is making in the hilly county of Merioneth.

Two years ago there was only myself keeping bees on the bar-frame principle, and although I managed to get honey without killing my bees, yet I felt that I had but a very imperfect knowledge of the bar-frame system, for I had not seen nor even heard of the *B. B. Journal*, or any of the modern bee-books. At that time I considered a 30 lbs. super taken off a stock hive, leaving stock hive plenty of stores to winter upon, a good take of honey. But now during these last few years apiculture has made rapid progress, there being several other persons keeping bees on the bar-frame system. We have no Association here, or is there one near us, but by studying books and taking in your valuable *Journal* we get on very well. We have nearly put an end to the cruel practice of killing our bees over the brimstone-pit: and although cottagers do not seem inclined to adopt the bar-frame, yet they are pleased for us to take the bees for them. I noticed as I drove the bees out of cottagers' skeps that there were a great many of them queenless, and a few of them had fertile workers. This was invariably the case with skeps that had swarmed several times. Some of them had sent out five swarms. We have had a good honey harvest in this county this year till the end of August, when it turned wet and cold, and has been so ever since.

As I was removing frames from one of my hives I was astonished to find drones on several frames. This, of course, led me to think that the stock was queenless, as this was on the 3rd of October; but on taking out the central comb I found brood in its various stages, also eggs. The queen is not a young one, but one of last year's. Also on opening a hive on September 24 I noticed a small patch of eggs, but no brood in any other stage. On September 30th I opened it again, but found no brood in the frame that contained the eggs last time, but found eggs in another frame, and have opened it since, but found no brood. Can it be that the workers eat the eggs, or what becomes of them? If any of the readers of the *Journal* have seen similar occurrences, please state in your next issue.—H. P. Jones, *Llanerch, Dinas Mawdwy.*

THE SWANMORE BEE CLUB.

We must all have read with very great pleasure of the excellent doings of this little club, possessing fifteen or sixteen hives, and harvesting over 1000 lbs. of honey this season, besides running off with sixteen prizes. The interesting letter from your same correspondent, 'A Hampshire Bee-keeper,' on his first year's experience, is pleasant reading throughout, and I do not think sufficient importance is usually attached to the point he makes, viz. the solid pleasure and recreation he has derived from his bees. Anything productive of contentment to those classes to whom so few pleasures belong, must surely be of moment to the community at large. But I am tempted to contrast his letter with the growl from the same parish (perhaps the same club?) in your September 1st issue, the purport of which is that our Association ought not to confine cottagers to one-pound sections in our prize schedules; that the prizes ought to be of the same amount as in the 'open' classes; that exhibitors should be barred for putting (through ignorance) their names on exhibits; and, lastly, that it is a great mistake to allow a short notice for entries. The latter complaint refers to one show only, and I do not think our friend would have raised the objection had he known all the circumstances of the case. The Romsey committee very naturally wished to embody the entries in their official catalogue, and through the loss of our most excellent local secretary there, together with delays in drafting and subsequently printing the schedule, the time given us was all too short to allow of further 'notice.' It is only scantily fair, however, to us to add that post entries would be accepted for another fortnight upon payment of a fee of one shilling, which fee I may say was not enforced! As to the other complaints we now know that Swanmore took nearly all our prizes in the *open* classes, and it sounds a little greedy when your correspondent complains about the cottagers' classes having prizes of less value offered. The judge (Mr. J. M. Hooker of London) considered the exhibit complained of as having a name attached of such surpassing excellence, that he, as I think very properly, passed over the first offence of a genuine cottager in so doing, as it was done through evident ignorance, the man being utterly unknown to him. The suggestion that cottagers' prizes ought not to be confined to one-pound size is thoroughly practical, and as soon as the cottagers themselves sufficiently support us, I have no doubt will be given effect to; but your correspondent, and I hope I may add my friend, must understand we have only a limited amount to give away, and we have found it unfair to class one-pound and two-pound sections together. But as Swanmore men are so capable of beating us all in 'open' field, I hope they will prefer to choose 'open' classes, and not avail themselves of an advantage limited to those struggling under adverse circumstances.—E. H. Bellairs, *Hon. Sec. Hants and I. W. B. K. A.*

MY FIRST YEAR'S EXPERIENCES.

By a London Bee-Keeper.

In December last I was given two straw hives of bees, and with these I commenced bee-keeping within three and a half miles of Oxford Street. I knew nothing of bees, and did not even know a drone by sight, and it was not until August that I saw any one handle bees. In the following month the bees in one of the hives died of dysentery. There were very few bees, and nearly all their stores were gone.

On the 28th of March I transferred the bees from the other hive into a frame-hive, and I found that there was brood in three of the combs.

On the 27th April I found there was a great quantity of drone brood, and I cut out over 1000 cells full of drone brood from two of the combs, leaving a little in two other combs.

About once a-week I placed a sheet of foundation in the middle of the hive feeding the bees regularly, and on the 13th May nine frames were full of brood and the bees were at work in the section frame at the back of the hive.

On the 14th May I bought an Italian queen with a large retinue. I took from my old hive a comb of hatching brood, replacing it with a sheet of foundation. After brushing off every bee I placed the comb in a new hive, together with one sheet of foundation. I then opened the queen's box, which meanwhile I had put in a warm room. The weather was cold, and the queen had been long on the road, and on opening the box I found about two dozen bees rolling about on the bottom quite dead with the cold. The others could only just crawl, and they would not come out of the box, so I put it in the hive with the hatching brood and sheet of foundation, put on some warm syrup and hoped for the best. I should mention that the queen's box was about the same size and shape as a section frame. Unfortunately it got colder and colder as night drew on, and I resigned myself to losing not only the queen, but also the hatching brood. Luckily I thought of a stone hot-water bottle. I filled one with hot water and put it in the hive on the top of the frames, covering it with wraps to keep the heat in and prevent its being too hot at first. Next morning it was still warm and the bees were all alive. On the 20th I put in another comb of

hatching brood from the old hive, replacing it with a sheet of foundation; and I continued the hot-water bottle every night until the 25th, when there were plenty of bees to keep the hive warm. The weather was cold during the whole of May, and the fruit-blossom was quite over on the 28th.

To return to the old hive. I cut out several queen-cells on the 20th and 25th May, and on the latter day I put on a super of twenty-one sections. On the morning of the 2nd of June I found and cut out several more queen-cells, and fearing the bees would swarm as the day promised to be very warm, I took out all the combs except two and put in five sheets of foundation and two section frames and replaced the super. In spite of this the bees swarmed, the day being very hot, and in the evening I returned the swarm to the hive, adding three new sheets of foundation in the place of the two section frames and returning the super. I also wedged up the hive in front, as also the cover, and shaded it for two or three days. The swarm was captured for me in my absence by a friend's gardener, who said it was one of the largest he had seen.

On the 13th June I took out the back frame of foundation, which was now quite worked out, and replaced it with a section frame. I did so as the bees had deserted the back frame on the night of the 11th, when the thermometer went down to 39°. The bees in the old hive were hybrids, most of them were black, but a good many had one or two yellow bands. These yellow bees did not appear till late in the spring. On the 10th of June the first section was completed, and two more on the 16th, and I then placed a second rack of twenty-one sections under the first, and on the 29th I extracted 1 lb. 2 oz. honey from a frame to leave more space for brood.

From the 7th to the 14th of July I took twenty more sections, and on the 21st I took forty-one. Some of these last were not sealed, but I wanted to leave plenty of room as I was going to the seaside for a month. On the 21st August I took twenty-four more sections (some only partly sealed), making ninety-one in all, and I have since extracted over 7 lbs. from the frames; total extracted 8¾ lbs., and I have taken out another frame three-quarters full of sealed honey, which I have kept in reserve.

As soon as I had done extracting (9th September) I began stimulative feeding as I found there was no brood sealed or unsealed. I also bought an Italian queen, thinking the hive might possibly be queenless. If not the queen was two years old and the hybrids were sometimes very savage. They were also inclined to be vindictive for two days or so after being put out of temper by removing brood, &c., and would attack me when I went near the hive.

As I could not find the old queen I put in the Italian queen on September 12th in a pipe-cover cage without removing her. On the 16th I let loose the new queen, when she was at once seized savagely, and I recaged her in a fresh place. I noticed young brood and not being able to find the queen I shook all the bees out on a sheet in front of the hive intending to pick the queen out as they crawled back, but it began to get dark almost as soon as they were all out, and I had to give it up and get them back as soon as I could. About three-quarters of a pint got into the garden roller, which was on one corner of the sheet, and would not come out, and the queen must have been with them. I put an empty hive for them, but they did not go in. I could not attend to them in the morning, though they were still in the roller, and they went off like a swarm in the afternoon and I saw no more of them. On the 19th and 20th I cut out several queen-cells and released the queen, but both days she was at once seized. On the 22nd I cut out more queen-cells, but did not release the queen, as the cage was covered thick with bees as it had been hitherto. Next day there were not so many bees on the cage and I released the queen, and she was well received and has since been laying. This hive is now ready for the winter with plenty of bees to cover seven frames.

To return to the new hive. On the 20th of June it consisted of ten frames covered with plenty of bees, and I put in a comb with a good deal of honey, which I took from the other hive on the 13th. On the 27th June I found and cut out three queen-cells which much surprised me. I put in a sheet of foundation and extracted 3 lbs. 6 oz. from the four back frames. I put in two more sheets of foundation on the 2nd July, but on the 7th I found the hive was queenless, and on the 9th I introduced an Italian queen in a pipe-cover cage, releasing her on the 11th, when she was received very well and began laying before my eyes. From the age of the brood I think I must have accidentally killed the queen on the 27th.

On the 7th and 11th July I extracted about 9 lbs.; 4¾ lbs. on the 21st July, and 8 lbs. 14 oz. between the 23rd August and the 2nd September, making a total of over 25 lbs. This hive is now ready for the winter with plenty of bees to cover eight frames.

All the honey was of very good quality, mostly white clover and some lime, but part of that taken after July was darker in colour, and it was very difficult to extract.

Amongst other things I noticed that if the foundation came within about a quarter of an inch from the sides or bottom of the frame the bees joined it on to the frame—one sheet was joined nearly all round. I have also noticed that bees are like the ants mentioned by Sir John Lubbock, which run away when alone, but defend themselves bravely when supported by friends. Thus with bees, if you take out the frames, or take away a rack of sections and then separate all the sections, they become cowed and subdued, but if you merely move one or two sections while in the hive they will boil over to the attack. Carbolic acid solution I have found useful to sprinkle over spilt syrup, it even kept away wasps.

I think that my experience may be encouraging to beginners, as I managed my bees entirely from books. I began the season with one stock which I have increased to two, and I have taken ninety-one sections and 34 lbs. of extracted honey in spite of the loss of a queen in the middle of the season; and this, I think, is not bad for Cockney bees.

F. L.

'LABOUR LOST—A PROTEST.'

Mr. Thomas Wildman, after he had given some instructions as to the proper management of bees, concludes the chapter in words which were intended to parody the reply, as he tells us, of C. F. Cresinus when arraigned before the Curule Edile. 'These, Britons! are my instruments of witchcraft; but I cannot show you my hours of attention to this subject, my anxiety and care for these useful insects; nor can I communicate to you my experience, acquired during a course of years.' Very true is the impression here conveyed. We can teach, if neighbours show those who desire demonstration, and by other means we can assist others to attain that measure of success to which we have ourselves attained, but we cannot relieve them if we would of anxiety or after-attention which a careful management necessitates. We cannot give them that practical experience so necessary to prove the value of the teaching we desire to inculcate; but if only those who desire to obtain assistance will strictly carry out the instructions given them in the articles in various books and periodicals, the result will be that a success, probably greater than their most sanguine expectations lead them to hope for, will follow from an experience gained by putting theory into practice, and proving by actual experiment the truths they are in their novitiate obliged to accept, not being in a position to refute.

Here lies the essence of the advice I desire to give, for there is evidently great need for an emphatic protest against the course taken by so many of our friends who are desirous to learn from the *Journal of Horticulture* and the *Bee Journal* the way to manage their apiary and to conduct the different operations necessitated by the possession of a few stocks of bees, if the greatest amount of pleasure and of profit is to be obtained from the study and care of these insects. To give an instance: Our country friend desires to unite the bees driven from a stock to the one standing by its side. He accordingly refers to back numbers of this *Journal*, and finds exactly what he requires. He reads the instructions most carefully through, and proceeds to put them into practice; but as 'the town' is some distance away he has no essence of peppermint or other strong-scented substitute, so, forgetting what he has read about the different odours peculiar to each stock, he reckons 'it doesna' matter,' and thinking to get done in good time, about four o'clock in the afternoon he proceeds to unite. An hour makes no difference, and as for that 'bit o' essence' it will matter nothing he seems to think—and in skilful hands it might not be of much moment. In other respects he carries out the instructions, but is amazed in the morning to find that a serious fight has taken place, and that thousands of bees lie dead upon the floor, and that instead of his stock being strengthened by the union, it is reduced to a most deplorable plight. Everybody knows the sequel. Hot abuse and vituperation of new-fangled ways of books and book-learning, vows never again to venture out of the ruts of custom into the paths of knowledge. He never blames himself for omitting the essence. Not he. He never thinks that evening is the time when he is told to perform the operation; but thanks the person who was kind enough to instruct by abusing him and all his ways. This is no exaggeration. It is in one form or another of far too frequent occurrence. Let me ask, is it fair? In the name of common sense is it reasonable, first of all, to neglect instructions, then abuse the instructor when failure follows the departure from the rules given for guidance at such times?

There is no more common abuse prevalent—not only amongst bee-keepers, but amongst gardeners and other classes—than this, shall I say impertinent misuse of books? Books and papers are written to instruct. Some use the instruction; many abuse it. Few are so clever as to need no instruction. More there are who are ashamed to acknowledge ignorance, and many are to be found who may, if they will to do so, gain from the writings of others a knowledge of the subject they wish to understand, which even if it be but a poor apology for practical knowledge, is still a great assistance and a material help when, instead of years, but a few months only can be spared to gain an efficient idea of how to manage even so apparently simple a business as bee-keeping. It is in such cases that a feeling of despair comes over the minds of those who, at no little trouble to themselves, try to assist others. How many times does 'A Lanarkshire Bee-keeper' draw attention to the most salient features conducing to success, and yet getting up from reading this advice, and going to some cottage bee-keeper who reads his *Journal* regularly, there seems to be an absolute determination not to take advantage of the excellent opportunities offered for improving the value of his stocks and doubling and trebling their annual yield? On the other hand, how gratifying to see the result as shown in the apiary of a wise man who, following the teaching he thinks most profitable, carries it out until he feels able by experience to improve upon the teaching he has followed, and at last is able not only to manage his own hives, but to give sound advice to those around him.

Five hundred years of bee-keeping will teach some men nothing, while as many days will give others a knowledge of no superficial kind. To conclude, let me ask one and all who come to books or to papers for advice, to carry out the instructions there given *in toto* until they feel confidence in their own power. Then always remember, in case of failure, that it is not the books at whose door the fault must be laid, but at the door of experience, a hard taskmaster, who often requires many failures ere the highroad to success is reached, and even then often throws across the comparatively smooth path of the wayfarer obstacles of so serious a kind as to need more than one attempt to surmount them. It is then time to blame instructors when their instructions have been carried out, not in letter only, but in spirit also, and failure has been the result. Condemnation before fair trial disgraces those who utter it, and fails to strike those who do not deserve it. Criticism is indeed a blessing, and is necessary, but to criticise some knowledge of the subject under consideration must be possessed; and as one who feels he is not either better informed or who cannot see some transparent fallacy in the advice given for his assistance, is entitled, before trial at any rate, to deride the means pointed out to him as the surest way of successfully performing a necessary operation.

Men who know most condemn least; those who know little condemn much.—Felix. (*Journal of Horticulture.*)

PAINTING HIVES.—INSTINCT OF BEES.

I notice in 'Jottings' of last issue a reference to the colour of hives, and the argument used is so inconsistent with reason and facts that I hope you will pardon me for offering a short reply. We are asked whether queens often leave the hive, and then told that without she does the same as the worker bees it is of no use painting hives of different colours, as her majesty would not be able to distinguish 'green from white.' The strongest argument that could be used in *favour* of painting hives of different colours is here used *against* it. I think that it is quite clear that queens have their time occupied at home, and that they seldom leave their palaces, and it is known to more than one apiarian that they get lost occasionally when they do leave, but this cannot possibly happen without a *cause*, and that cause is what we want to know. (I should like to know whether a larger proportion of queens are lost in large apiaries than in small ones during their wedding tour.) However, I argue that the less a queen flies out the more conspicuous her hive should be, for if a row of hives stand like so many houses, and are all one colour and shape, and a queen leaves for the first time, although she does survey the hive for a few seconds it seems to me there is a probability of her mistaking the hive on her return, and so getting lost, whereas, if each hive bears some characterising mark, it is more readily distinguished, and the dangers consequently diminished. Why, even human beings are unable to find their homes in *long rows* of houses until they have got somewhat accustomed to them by going in and out without they have some guide or other, such as a number or colour of door or window; and if *we* get lost, why not our friend the queen bee under similar circumstances?

I next noticed the words, 'And as we know worker bees fly to the same spot by *instinct*.' Now, I would like to ask your correspondent, who are meant by 'we?' I for one beg to withdraw from that plural number. The true definition of the word 'instinct' in many cases is—Don't know. It is remarkable that if men notice the actions of animals or insects which for want of observation or other causes they cannot quite understand, they at once attribute them to instinct. What is instinct when applied to bees coming back to their hives? How is it that 'instinct' only brings bees back *just as far* as they have been in the habit of gathering food? Take them outside that area, and where is instinct? Take a hive of bees a distance of three miles, and place them on a stand, but don't let them fly out for, say, twelve hours,

then go to the hive and take out a hundred bees, and after putting them in a box, and the box in your pocket —no escape-holes mind—walk half a mile, and then let them go, and see how many instinct will bring you back. The fact is there is none of that almost unintelligible word 'instinct' in connexion with bees coming back to their hives. They come back because it is a natural necessity they should do so. And they can find their way back simply because before they start from the hive, or rather its vicinity, they thoroughly examine not only the hive, but its surroundings, and, in fact, the whole course of their journey,—hence their return.—CORRIGENDA, *The Apiary, Selston, Alfreton, October 8th.*

OBSERVATIONS UPON DRONES.

Bevan says that the drone hatches on the 24th or 25th day after the egg is laid. I knew of nothing more definite on this point.

To get more precisely the facts, on the 16th day of last July, a drone-comb was put, at 7 a.m., centrally in a strong colony, which had been fed for several days, as the drones were being expelled from many hives. At 9 a.m. the queen was found on that comb, having laid three eggs. She had just begun laying. At 9 a.m., on July 17, it was removed to a strong colony, without queen, eggs, or larvæ. On July 27, many cells were capped, and on July 28, at 2' p.m., some 200 were capped, many eggs having, for some cause, disappeared. On Aug. 9 none had hatched. On Aug. 10 examinations were made every hour. At 5.30 p.m. none had crawled out; at 6.30 two had hatched, and a third was hatching. If these drones came from the first eggs laid, they took about twenty-five days and 8½ hours to develop.

At 6 a.m., on Aug. 11, many more had hatched, and at 6 a.m. on Aug. 12, all but seventeen had hatched. At 6.30 p.m. all but two had hatched, and at 6.30 a.m. of Aug. 13, the last one was found with the cap off, trying to crawl out; it was strong and perfect. Now if the egg producing this drone was laid just before the comb was removed, then it took nearly twenty-seven days to mature.

During the whole time of these observations the weather was of the most favourable kind—the thermometer ranging nearly every day above 80° Fahr., and being only once as low as 62°. The colony was kept in good heart by daily feeding, and I can think of nothing which could have retarded in the least the development of these drones, unless possibly the fact that from so many of the eggs having disappeared, they were not as compact in the comb as they otherwise would have been. In this observation, although there could not possibly have been more than twenty-four hours' difference between the laying of the first and the last egg, there was about two days and a half between the hatching of the first and the last drone.

It is quite interesting to watch the different actions of just hatched workers and drones. The worker, true to her name and office, begins to crawl over the combs as if to feel her legs, stops occasionally to clean herself up, and before long helps herself to honey from an open cell. The drone, on the contrary, is a born dependant. The first act is to touch the nearest worker he can reach with his flexible antennæ, and, begging to be fed, he is at once supplied with honey disgorged from the proboscis of his attentive nurse. And so he goes on all his life, seeming to prefer to be fed, although perfectly able, if needs be, to help himself.

A very bad name has always been given the drone. Virgil has his fling at him, stigmatizing him as having no proper office in the economy of the hive—seeking only to devour the stores which he had no share in collecting. I wonder what the poet thought he was made for; or as he says that the bees collected their young from the flowers, being too chaste to breed them, what motive he could have thought they had to gather in such useless consumers! And yet without any special pleading how much can be said in his defence. It is only too evident that his proboscis is too short to suck honey from the flowers; that his legs have no pollen-baskets; and that he can secrete no wax. Great as his bulk is, he has no sting, and can do nothing for the defence of the commonwealth; but then without him that commonwealth could have no existence. The sole object of his life seems to be, at the proper time, to fertilize the young queen—and this he is always ready to do. Now why should we blame any creature which fulfils the special object of its creation? And yet I fear that in spite of all that can so justly be said in his favour, our poor drone will always be cited as an incorrigibly idle reprobate, who meets with only his just deserts when after a life of pleasure he is killed without mercy by the industrious workers. He will always be known as Shakespeare's 'lazy, yawning drone.'—REV. L. L. LANGSTROTH, *Oxford, Ohio.*—(*The American Bee Journal.*)

GIANT BALSAMS—WASPS AND BEES.

I thought it would interest some of your readers to know that I have noticed numerous wasps (one of which I enclose) gathering honey from the blossoms of giant balsams, which I planted in somewhat large quantity for my bees, who just now are thoroughly appreciating my consideration. You will notice upon the shoulders of the wasp the peculiar pollen as seen upon the bees when working upon this plant; the whole of them are there continually, and work quite as industriously as my bees. During the past season I have had a fairly good return of honey from my bees, and in addition have increased them from eight to fifteen stocks, most of which are going into winter on ten frames thickly covered.—C. H. BUCKLEY, *Small Heath near Birmingham.*

TREATMENT OF CONDEMNED BEES.

On reading your article in the last issue of the *Journal* on 'The Treatment of Condemned Bees,' it struck me that I should like to give you my first experience of them, as it does not seem to me essential that so many lots as you advise—'the contents of four skeps, or three if very good'—should be united to form strong stocks for the following year, providing you do not mind the trouble of feeding to induce late breeding.

I made up four bar-frame hives last autumn from six skeps: No. 1, the contents of one skep, driven on Sept. 8th; No. 2, from one skep, driven Sept. 12th; No. 3, from two skeps, driven Oct. 2nd; and No. 4, from two skeps, driven Oct. 6th. I gave No. 1 one stored frame and the others two each; and fed until No. 1 had five, and the others six frames each built and stored, then closed up for winter.

This year I only got 20 lbs. of honey from No. 1 hive; the bees would not work in sections. They swarmed twice: the first swarm I lost, through being away when they left the hive; the second swarm have plenty of sealed stores to carry them through the winter, are strong in numbers, and with their young queen will, I hope, do well next year.

No. 2.—This hive gave me 66 1-lb. sections, and 10 lbs. of honey from the body of the hive.

No. 3.—I took an artificial swarm from this hive, and 20 lbs. of honey from the body of the hive. The swarm gave me 19 1-lb. sections and 12 lbs. of honey from hive.

No. 4.—This hive gave me 64 1-lb. sections, and 8 lbs. of honey from hive.

So that from the four lots I have had two swarms, and lost another, 149 1-lb. sections, and 70 lb. of honey from the hives; which I think shows that good stocks for the following year may be made even from single

skeps. I believe I should have done better still if I had had more experience, but this is only my second year of bee-keeping. Evidently I did not put the section-boxes on to No. 1 soon enough, hence their swarming; and No. 3 would have done better if I had not taken a swarm from them.—LYNTON.

[Our correspondent was extremely fortunate with his condemned bees. It does not at all follow that every one would meet with such success. October 1884 was very mild and open, so that the bees could store and seal their food. It is very doubtful if a similar lot, so treated this present October, would turn out as well. 'Keep strong stocks' is good advice, and 'Make strong stocks' from condemned bees is as good.—ED.]

Foreign.

ITALY.

The 'Associazione Centrale d'incoraggiamento per l'Apicoltura in Italia' has just had a large and interesting meeting in connexion with the exhibition held in Milan on 20th to 27th September. The opening meeting took place on Thursday evening, September 24th, when, owing to the absence of the President of the Association, Count Gaetano Barbo, Dr. Angelo Dubini took the chair. There was a large number of members present from all parts of Italy; and the visitors who had responded to the invitation were M. Ed. Bertrand, editor of *Bulletin d'Apiculture de la Suisse Romande*, and Mr. T. W. Cowan. Mr. Hamet, who was expected, did not make his appearance. After welcoming the visitors, the meeting proceeded to discuss the various questions put down on the agenda paper. The various points were discussed in a most interesting and animated manner, the principal speakers being Dr. Dubini, Dr. Bianchetti, Professor Barbieri, M. di Jovio, Professor Chiappetti (editor of *Le Api ed i fiori*), Professor Sartori, M. Moria, M. Bertrand, and Mr. T. W. Cowan. The next day the members visited the exhibition of bees, hives, and honey, which was a very large and good one. There were several novelties, such as an improved solar wax-extractor, an automatic honey-extractor, an apparatus for uncapping honey-comb for extracting, and an apparatus for making comb-foundation. The show of honey, as well as of articles in which honey forms an ingredient, was also very good. As we intend to give an account of our visit to Italy, and of bee-keeping there, we will reserve until then a full description of the meeting and exhibition.

In deference to a desire unanimously expressed by the bee-keeping community, that an official representative of the Central Association of Italy should be present at the festivities organized in Germany in order to celebrate the Golden Jubilee of the great master Dzierzon, the Board of the Association has deputed Professor G. B. Grassi to undertake the mission. The Professor was, moreover, entrusted with the duty of presenting Mr. Dzierzon with a diploma of honour on behalf of the Italian Bee Association. It is understood that Professor Grassi will in due course send in a report of any observation, he may have been able to make during his stay in Germany likely to interest the bee-keepers of Italy, and for this purpose it will be duly published in the Journal of the Association.—*Apicoltore.*

SOUTH AUSTRALIA.

It may be interesting to your readers to know that the Colonies are far from backward in the pursuit of bee-keeping. Here, in South Australia, bee-keeping on the new system is in full swing. 'The Langstroth' seems to be the favourite hive, and Ligurian bees bid fair to be the favourite occupants. Several bee-keepers in Adelaide have lately been procuring Ligurian queens direct from Italy, and with favourable results. There are now on the water two or three dozen queens consigned from Bologna to Adelaidians. I anticipate dealing with eight of them early in September. We have a Bee-keepers' Society here, and profitable meetings are held. It seems that it will be but a question of time before South Australian comb-honey is placed in your London market, and for quality I feel sure will not be surpassed by any other. I read in your issue of June 15 last a letter from a Victorian apiarist, and I thought it high time to let you know that Victoria's sister colony—South Australia—is quite alive to value of 'the busy bee.'—F. A. JOYNER.

Echoes from the Hives.

South Cornwall, October 10th.—Really nothing to echo, except to repeat the notes which were last heard all round. Broken weather now for two months, with only occasionally a day or two for bees and bee-keepers' work. These opportunities have been used in these parts, and much work has been done. Our local expert has manipulated some sixty or seventy hives. We have driven, united, cut out, &c., for one and another, and after storing a large produce hives ought to winter well. In numberless cases bee-bread has been covered with honey, and it is a wonder where the bees have stowed themselves. There has not been much room for eggs of late, so uniting seems a promising mode of treatment for these parts, where as a rule brood-raising continues till late.—C. R. S.

Killarney.—I have had a most successful year's honey-getting, thanks entirely to the instruction I have been receiving from the 'Useful Hints' in your *Journal*.—J. MCDOUGH.

NOTICES TO CORRESPONDENTS & INQUIRERS

D. P. DAVIES.—*Cork-dust and Ventilation.*—Cork-dust will do as well as chaff for packing. It should not be pressed too tightly. If the entrance is low the slides can be opened one to two inches. There would be *quite* sufficient ventilation.

J. S. HAWKINS.—*Salicylic Acid Solution.*—The proportions are given on page 151 *Bee-keepers' Guide-book*. They are,—Salicylic acid 1 oz., soda borax 1 oz., water 4 pints.

S. P. R.—*Late Swarms.*—Your small swarm had better be united to another lot as you cannot safely winter only enough to cover two frames. If the queen is a good one keep her in preference to the old one.

J. H. HOWARD.—1. *Quincunx.*—The term 'Quincunx,' its application to the arrangement of hives and to comb-building, was so fully described in our last issue under 'Useful Hints,' that further reference is unnecessary. We must, however, remark that, holding a second-class expert's certificate, the examiners might fairly assume that you were acquainted with a good *English Dictionary*, and that in these days of Free Libraries, mechanics' institutes, reading rooms, and numerous other educational advantages, you would be at no loss to obtain information on the above subjects. In the cheap edition of Walker and Webster's *Dictionary of the English Language*, published by Tegg, 1864, you will find the term 'Quincunx' thus defined:—'A square of five trees, or other things, with one in the middle, thus:— . . . such an arrangement of trees in rows. . . . that any one in the second row is opposite . . . to the middle of the space between any two . . . in the preceding row.' 2. *Specific Gravity.*—The same authority defines 'Specific Gravity' as 'the ratio which the weight of the *matter* of any body or substance bears to the weight of an

equal *bulk* of pure water.' Specific gravity may be stated as the comparative weights of equal bulks of different substances, the assumed standard being 1, and sometimes 1000. This standard is—for liquids and solids—pure distilled water. In England the specific gravity is always taken at 60° Fahr. The specific gravity of refined, or clarified honey is given as 1·261 on page 87, Vol. XI. of *B. B. J.*, but of *average* honey, in its unrefined state, it may be put at 1·350; and a syrup of the same specific gravity may be prepared by dissolving 7 lbs. of cane-sugar in 3 lbs. of water. Information of this kind may be obtained from any Encyclopædia, access to which we must credit you with, as an educated expert. To save you trouble, however, we give you the specific gravity of wax as ·960 to ·965, and its melting point as 145° to 150° Fahr. The process of bleaching raises the specific gravity and the melting point very slightly. 3. *Koehler Process.*—The Koehler Process is a German method of procuring the fecundation of queens by selected drones. It is given fully on page 141, Vol. XV. new series of the *Journal of Horticulture*, and more concisely by the Rev. G. Raynor in his pamphlet on *Queen Introduction* (J. Huckle, price 3*d.*) 4. *British Bees.*—Kirby and Spence's *Introduction to Entomology* (Longmans, Paternoster Row) is a standard work. Any good encyclopædia will give you the 'Indigenous bees of Britain.' You might also consult Shuckard on *British Bees*, F. Smith's *Apidae*, and W. Kirby's *Monographia Apum Angliæ*.

Magister.—*Heath.*—The species of heath enclosed is technically called *Calluna vulgaris*, the most common of all the heather family. All our native species of heather are more or less visited by bees. The Ling is an excellent honey-secreting shrub.

New Subscriber.—1. *Treatment of Condemned Bees.*—As you gave five sheets of foundation to the contents of two skeps, and have fed them well, and they have much sealed brood, you cannot do better for them than you have. 2. *Zinc Tunnel between Inner and Outer Hive.*—We should prefer it of wood if you can conveniently alter it.

R. E. Lloyd.—*Candy.*—The sample you send is too hard and too large in crystal, approaching the texture of loaf sugar. The reason is you boiled it too much. Re-dissolve it and remove it from the fire, when a sample cooled on a plate is a little soft. Stir until beginning to set, and pour into plates lined with paper.

G. P. A.—1. *Ascertaining the presence of a Queen.*—If you do not see her, try and discover brood or eggs. Normally none would exist at this season, but as you have been feeding for three weeks, there may be some. If there is, the presence of the queen is proved, but if none, that does not prove that she is absent. 2. *Whether to give another Comb.*—As you, no doubt, examined the hive at midday, when the bees were active, there would be some on the division-board, but at night all will be on the combs. Do not give any more. 3. No. 4. *Amount of Syrup to give to six pounds of Condemned Bees on Foundation.*—Twenty pounds.

W. H. C.—*Peppermint and Lavender Honey.*—The best part of the honey season is over by the time peppermint comes into flower, therefore, if the flavour of the peppermint nectar is objectionable, all the honey gathered up to the middle of July may be removed from the hive, thus preventing the bees mixing the peppermint honey with that previously collected. Peppermint begins to flower late in July, and continues to bloom through August and September. The honey secreted by lavender is agreeably palatable.

I. Wildman.—*Honey Presser.*—Young's honey presser is like Mr. Thomson's (see drawing in *Essay on Bees* by 'Pan'). The length of tube is 8½ inches, 3½ inches diameter, with perforations about one-sixteenth part of an inch, similar to what is used for gravy or gruel strainers.

C. K.—*Queen with Parasites.*—These will disappear during the winter, but you may, if you please, remove them by tweezers. Hold the queen by the wings, be careful not to squeeze her in any way.

T. T. L.—*Unsealed Syrup.*—See reply to C. A. The same treatment is suitable to syrup.

C. A.—*Unsealed Honey.*—As in your case you cannot extract, the honey being heather, you had better remove the combs containing most unsealed honey to the back of the dummy, crowd the bees on to the remainder, put porous quilts on the top of the frames (either several thicknesses of carpet or a box with canvas bottom filled with chaff), and keep the bees warm, they will carry in the unsealed honey from behind the dummy, store it and seal it.

Golden Syrup.—*Bees kept at a distance from residence.*—1. There is no certain method of preventing bees swarming, but if they have plenty of room, they are not so likely to do so. When you visit them and find them getting crowded, give a rack of sections on top, first examining the frames and removing any queen-cells which you may discover. You may also, as you propose, give space laterally behind an excluder, but we should not make another entrance. In Epping Forest you will find plenty of honey coming in from sycamores, limes, clover, &c., before the heather comes on. 2. Blacks or Ligurians. 3. *Golden Syrup.*—Golden syrup is not good food for bees. Syrup made from best crystal sugar is better and cheaper.

B.—*Candy or Dry Sugar.*—In your case the best plan would be to give frames of sealed honey or syrup on both sides of the brood-nest. Failing these, we prefer dry sugar feeding, in similar form to candy over the frames. The latter often melts from the moisture and warmth, and trickling over bees and combs, the former perish in a sticky mass. Simmins' dry sugar feeder will answer your purpose. Mr. Hewitt speaks highly of candy given inside the hive in frames, a plan which seems feasible, but one we have not tried. Candy given on the top of the frames, under the quilt at spring, is a very different thing from giving it in the same manner in *autumn*.

L. Williams.—*Position of Frames.*—The reference in 'Useful Hints,' to which you allude, was in regard to hives with frames ranging from front to back—the *cold system*. In your arrangements, the *warm system*, the plan advised of moving the frames to the back is the one usually recommended by the advocates of that system. All our hives, with the exception of two, are on the cold system. In these two, when making winter preparations, we make the entrance under the front division-board the width of the hive, to admit of free ventilation. Hence the advice to make it at least six inches, although in our own case we take the whole width. Certainly do not again disturb the bees. With *double walls* we prefer your method, and have no doubt the bees will winter well. We use no shade either in winter or spring, except during bright weather when snow lies on the ground. At such times it is a good plan to shade the entrance from the direct rays of the sun by placing a board in front of the hive to prevent the bees from flying.

W. J. T.—*Granulated Honey.*—Honey, either comb or extracted, as a rule, can be kept from granulation by storing it in a dry room at a temperature of about 65° Fahr. There are, however, some kinds which will granulate at even a higher temperature. Comb-honey cannot be brought back to a fluid state except by melting. If melted, both comb and extracted should be brought up to 190° Fahr.; and in the case of the

former, the wax, which will float on the surface, should be skimmed off. 2. Granulated comb-honey is unsaleable; but granulated extracted is not depreciated in value, indeed, it is often preferred. 3. About 65° Fahr. will generally prevent granulation. 4. If unripe honey be raised to a temperature of 190° Fahr. and allowed to cool gradually, the watery particles will evaporate; but when thus artificially ripened, it loses at least a portion of its aroma and fine flavour, and becomes of less value in the market. 5. Ripe honey may be known by its 'consistency,' *i. e.*, its specific gravity, aroma, flavour, and freedom from acidity.

H. W. D.—*Open Entrances.*—Yes. Our own entrances are left open through the winter to the extent of 6 ins. by ¼ in., and we find it answer even in the coldest winters. Some, however, object to this, and close up to 1 or 2 ins. Use, therefore, your own discretion. See 'Useful Hints.'

A Beginner.—*Skep full of Drones.*—Take advantage of a fine day, and drive the bees from your skep, when we think you will find no queen and very few workers but plenty of drones. In fact, there is no doubt that your hive is queenless, and your best plan is to utilise the honey and wax. The queen was lost on her wedding flight. Destroy the few bees and drones.

W. E. B.—*Limnanthes.*—The young seedlings of Limnanthes Douglasii may be planted out now one foot apart if the soil is good: plant firmly, to prevent worms from drawing the young plants out of the ground. Limnanthes is quite hardy and will stand the winter with impunity.

Spruce.—1. *Number of Frames.*—For extracting, ten or twelve frames, two of which should be separated by excluder zinc. For supering, twelve frames will give good results. 2. *Keeping Honey.*—Earthen-ware is better than metal for the purpose; whatever vessel is used it should be quite full and closely covered to exclude the air. 3. *Pollen*, or bee-bread, keeps through the winter in the hive, even if the cells are uncapped. 4. *Sealed Honey Comb* will keep well for twelve months; for keeping, choose that which is thickly sealed; a warm, dry place, such as a cupboard in a sitting-room, is the best place for keeping honey.

Student.—*The Mouth of the Stomach, and the Conditions of Hibernation.*—We would suggest that you should study Pastor Schönfeld's elaborate paper on the mouth of the stomach, a translation of which has appeared in our pages (Vol. xi. 78, *et seqq.*). The conditions of the hibernation of the hive-bee, and those of the humble-bee, wasp, hornet, &c., are essentially different, as the first, by means of the instinct implanted in her, makes provision for her winter life, whereas the existence of these last closes at the commencement of winter, the queens alone surviving to the ensuing spring. 2. *Proportion of Sexes of Ants and Bees.*—Among white ants there is only one male and one female in each society. In a wasps' nest there are about equal numbers of males and neuters, amounting in some cases to several hundreds. In the humble bees' nest there are several males and two kinds of females, one kind being much larger than the other. Among the common ants the males are very numerous, and are winged like the females, the former dying after impregnating the females. We know of no reason assigned for any stated proportion of males to females. 3. *Drones.*—The drone gathers no honey. The reason why there are so many drones in a hive is that the mating of the queen may not be delayed, and that her nuptial flight should not be protracted. The intelligent bee-keeper can limit the number of drones in a hive by the use of worker foundation. 4. *Capped Cells in Sections.*—We should like to examine a specimen of a capped empty cell in a section, as we have never seen it. 5. *Wasps Carnivorous.*—Wasps and hornets feed their young grubs with sugar, honey, &c., but also provide flies, caterpillars, &c., for the older grubs. It is quite possible that wasps do feed upon aphides, but we have never noticed them doing so, though we have constantly seen them eating flies, caterpillars, &c. 6. *Wasps and Bees.*—It is only when hives get weak that wasps do any serious damage to bees, and no doubt by keeping down the number of flies, &c., they perform their part in the economy of nature. 7. *Artificial Ventilation.*—We do not believe in artificial ventilation; the bees, as in their natural state, can do it for themselves. The hole in a bee-tree varies in size and position. 8. *Wintering Bees.*—We have never used broad-shouldered frames. Our great object in wintering bees is to keep them dry, moderately warm, and plenty of food. We always reduce the combs to five or six, so that they are well crowded with bees. When there are more combs than the bees can cover, they are apt to get mildewed and destroyed by the larvæ of the wax-moth. We use dummies and fill up the space with chaff-cushions. 9. *Ants.*—In the nest of the white ants or termites the royal pair are enclosed in a cell with an opening large enough for the neuters to pass through, but which prevents the egress of the male and female. The fact of the male ant living in this royal chamber pre-supposes that all the eggs are not impregnated at once. 10. *Fancy Work in Combs.*—The Scotch apiarians have shown great ingenuity by making their bees build their combs of various shapes and patterns; and in the reports of several of the recent shows—for example, see Rutherglen Apiarian Show, p. 331,—you will find accounts of them. 11. *Drone Massacres.*—The hive-bee is unique in its drastic mode of dispensing with undesired vitality at the close of the season. The hornet (*Vespa crabro*) is the largest species of the wasp found in Britain. Its life is similar to that of the wasp. The males and neuters perish on the approach of winter, some of the females alone surviving. The winged ants mostly perish before the commencement of cold weather, a few surviving to found new colonies and to perpetuate the race. The neuters pass the winter in large numbers in a torpid state, and resume their activity on the return of spring. Our columns are at all times open to the discussion of any points relating to the economy of the hive-bee, or the cognate races.

Sunrise.—We will prepare a drawing as desired, which will be ready for our next issue, when a reply to the other queries in your letter will appear.

T. L.—Unite now, by so doing you may save one lot, whereas two weak lots kept will most likely both die.

C. Chappell.—*Bees building irregularly although supplied with foundation.*—You will find that the foundation has fallen down, hence the irregular building and the building upwards. At this late season you had better give them ready-built combs from other hives if you have any, or if not let them work as they are, and in the spring cut out and straighten the crooked combs.

A. E. F. B.—The comb forwarded does not exhibit any signs of foul brood. The best sugars for dry feeding are Porto Rico and the finer grades of Demerara.

Corrigendum.—In report of the Falkirk Bee and Honey Show *for* 'Class 2, super of honey not less than 16 lbs., 1st, William Sword; 2nd, Mr. W. Smellie; *read* 1st, Wm. Baird; 2nd, Wm. Sword.

*** *Several queries and communications are held over till our next issue.*

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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

[No. 181. VOL. XIII.] NOVEMBER 1, 1885. [PUBLISHED FORTNIGHTLY.]

Editorial, Notices, &c.

PROPOSED WEEKLY ISSUE OF THE *BRITISH BEE JOURNAL.*

In our issue of April 15, No. 168, page 125, we placed on record our views as to the desirability of the *Journal* being published once a-week. Our reasons for this were based on the difficulty we had experienced from the limited space at our disposal for ventilating the constantly varying aspects of apiculture; on the increased attention which has been given in this and other countries to the culture of bees; on the greater demand for honey in its varied forms and applications; and on the formation of several honey companies. On that occasion we invited the free expression of the opinions of our subscribers, and we courted suggestions from them as to any improvements which might be introduced into the *Journal*. In reply we have been favoured with numerous communications, the majority of which indicate the writers' approbation of the alteration proposed, and express their belief that it will be conducive to the progress of apiculture. Strengthened and stimulated by this support, we have considered it a duty incumbent upon us to comply with these expressions of opinion, feeling assured that the publication of the *Journal* weekly will allow us more completely to fulfil the mission on which we have entered, viz., 'the free discussion of all theories and systems in bee-culture,' and more heartily to advocate the progress of all matters beneficial to bee-keepers and promotive of bee-keeping.

The *Journal* has now been established for above twelve years. It commenced as a monthly publication, it developed into a bi-monthly, and now it is proposed that there should be a further advance and that it should be published once a-week.

This more frequent publication will enable us to be more abreast with the views of Continental and American bee-keepers; it will bring us into closer contact with our subscribers; it will permit us to be more prompt in our replies to the queries of our correspondents; and we shall be able to introduce many new features which we are precluded from entertaining in consequence of the small amount of space in the *Journal* in its present mode of publication.

We trust that in commencing this new phase in the history of the *Bee Journal* we shall have the cordial support of all who have patronised us in the past, and that they will render their willing aid in increasing the usefulness of the *Journal* and in augmenting the number of its subscribers. We desire to take advantage of the present opportunity of thanking all our friends who have favoured us in the past with their communications, and we hope that they will continue to employ the *Journal* as their vehicle for giving voice to their views on every system of bee-keeping.

The arrangements required by this alteration of publication are not quite complete, but we hope to be able to give full particulars in our December issue.

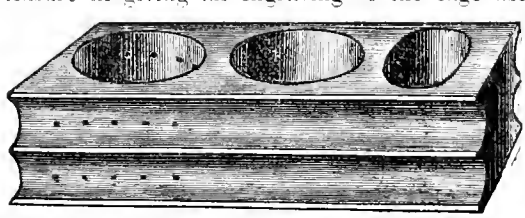
In the meantime we beg to announce that the first number of the weekly issue, price twopence, will be published on Thursday, January 7th; and it is our hope that the circulation will be so increased, that we may be enabled, at no distant date, so to reduce its price that it may be procured by the humblest bee-keeper.

Subscribers who have already paid their subscriptions in advance of the present year will be credited to such date as will be in accordance with the amount paid. They may still continue to have the *Journal* direct from our office on the following terms, viz.: one year, 10*s.* 10*d.*; six months, 5*s.* 5*d.*; three months, 2*s.* 8½*d.*, payable in advance. The *Journal* will be posted in sufficient time to be delivered either by the first or second post on Thursday morning.

BENTON'S SHIPPING-CAGES.—EASTERN RACES OF BEES.

[I should be greatly obliged if you could give a sketch of the queen-cages that are used by Mr. Benton to send Palestine queens to England, or a description of them in the *B. B. Journal*. Secondly, I should like to know what difference there is between Syrian and Palestine bees, and which are considered the best honey collectors? Thirdly, I wish to know whether the Carniolan bees are good honey-gatherers? Kindly answer through the *B. B. Journal*.—SUNRISE.]

In reply to the above request we have much pleasure in giving an engraving of the cage used



by Mr. Frank Benton for shipping queens from his apiaries in Cyprus, Syria, and Bavaria, to America and Great Britain.

Since the autumn of 1879, when Mr. D. A. Jones,

of Beeton, Ontario, Canada, accompanied by Mr. Frank Benton,—then a graduate of Michigan Agricultural College,—inaugurated the enterprise of securing and introducing into America, and other parts, those Eastern races of bees which gave promise of superior excellence, a considerable amount of attention has been bestowed on perfecting cages for shipping queens to distant parts of the globe. We consider the cage we have engraved (called 'The Benton Shipping-cage') the most perfect we have seen; it is the result of the experience of many years, and appears to provide for every emergency that could possibly arise in the transference of queens. When Mr. Benton elects to write his auto-biography,—which we feel assured would be eminently interesting,—we shall fully know all the difficulties and obstacles he has met with in investigating the peculiarities of the bees he has seen in his many and adventurous explorations, his successes in overcoming the various post-office and quarantine regulations of different countries and governments, and the various experiments he has made before arriving at this most perfect cage. We trust that, having succeeded in surmounting them all, he may in future rest and enjoy the fruits of his labours.

The present cage is made of a block of light dry pine-wood. It is $3\frac{3}{8}$ inches in length, by $1\frac{3}{8}$ in width, and $\frac{7}{8}$ths in depth. There are three holes, two one-inch, and the third $1 \times \frac{3}{8}$; these are bored within one eighth of an inch of the bottom; the centre hole is connected with the two end-holes by a half-inch passage. The smaller oval hole is the larder; it having first been waxed to prevent moisture from escaping, the necessary amount of food is deposited in it; this consists of Benton candy, which is composed of pulverised sugar and honey. In the other end-hole there are pierced ten holes in either side by means of a bradawl, through the thin part of the wood, for the admission of air. The sides of the cage are grooved to allow the air to pass in through the holes, in the event of it being placed on any flat surface.

This arrangement enables the confined bees to shift their quarters as they may feel desirable. If too warm and air is required, they can pass to the compartment where the air-holes are drilled; if found too cool, they can occupy the centre part, where they have ready access to their food.

It will be seen from the above that every care has been taken to provide for that which is now a most important branch of bee-culture — the mailing of foreign queens.

The description which we have given is that of a cage for forwarding a single queen with about sixteen attendants; Mr. Benton has cages for sending two queens with attendants: these are constructed on the same principle.

Syrian and Palestine Bees.—Syrian bees are found on that portion of the mainland lying opposite to Cyprus,—northward from Mount Carmel; the Palestines, southward from Mount Carmel, in the Holy Land proper. Mr. Benton, after five years' experience, is of opinion that the 'Cyprians are the best bees, all things considered, yet cultivated;' and that the Syrians, whose qualities are very similar to those of the Cyprians, are second to none, unless it be to the Cyprians. The two races are very similar in disposition, and he contends 'that with gentle treatment at the proper time either can be manipulated with little or no smoke.' The Syrian queens are large, beautifully striped, and very prolific.

The Palestines are smaller than the Cyprians; and from their stinging propensities, Mr. Benton is of opinion 'that he knows of no bees, unless possibly it be the Egyptians (which the Palestines resemble), that are so difficult to manage as the race coming from Palestine.'

The Cyprians, Syrians, and Palestines, have been largely introduced into America and this country; and while it is possible that these bees are more pacific in the countries of their birth, the opinion seems to be gaining ground that, whatever their high, vigorous, and prolific qualities may be, their vicious disposition renders them well-nigh unmanageable. In our last issue there is a communication from the pen of Mr. J. M. Hooker, a bee-master of great experience and high repute, giving the experience of American bee-keepers with these Eastern bees; in which he arrived at the conclusion that bee-keepers are justified in 'discarding them altogether in favour of Italians, Carniolans, and black bees.'

Carniolan Bees.—The appearance and characteristics of the Carniolan bees have been described with much minuteness in the *Journal* from time to time (see vol. xii. pp. 110, 123). Those who have had the greatest experience with them prefer them to the Italians. They are undoubtedly the gentlest bees known; their honey-gathering qualities are quite equal to those of the Italians, and they are very prolific and hardy.

USEFUL HINTS.

Another fortnight of cold, sunless weather has afforded few opportunities of opening hives, or of manipulating in any shape or form. During the last few days heavy rain has fallen in most parts of the country, and in all probability there will be no further opportunity of completing winter preparations where they have been hitherto delayed.

Sunday last, with us, was a brilliant, cloudless day, reminding us of mid-June rather than of late October, and the brightness and warmth of the sun's rays enticed forth the bees in large numbers, the air resounding with their joyful hum.

Winter Coverings.—Where the enamel cloths have not been removed we are inclined to advise their being allowed to remain, other quilts of felt or carpet being laid over them, a straw cover, where possessed, being laid over all. A feed-hole through the centre of all, with a medium-sized flowerpot inverted over it, to be occasionally replaced by a clean dry one during the winter months, will effectually prevent internal dampness of the hives by the absorption through its porous material of the arising moisture. This arrangement will be found to afford

a good substitute for the quilts recommended on former occasions.

Removal of Hives.—A fortnight ago, partly for convenience sake, and partly for experiment, we removed some half-dozen colonies in skeps to new stands, at a distance of from ten to fifty yards. On the few days on which the bees have been able to fly we were agreeably surprised to find that scarcely a dozen returned to the old stands. On Sunday last, when these colonies were airing themselves in crowds, there was no returning, and we do not think that half-a-dozen bees have been lost through the removal. When removing hives let it be done late in the evening, without shaking or disturbance of any kind, and remove all traces of their former stands and surroundings.

Mice, Spiders, Tomtits.—These are all enemies to the bees. On removing the cover of a skep, a few days ago, we were startled by the bounding forth of four large field-mice. One nest in the crown of the skep was completed, and another was in course of construction. The comb would soon have been reached and the colony destroyed, had we not discovered the interlopers.

As to spiders, we are sorry to differ from Father Langstroth, who pleads eloquently on their behalf, but we find them very destructive of bee-life. Spinning their webs all around the entrances, the bees when flying on bright days are caught in numbers and speedily devoured. With Virgil we class the spider—

'*Laxos in foribus suspendit aranea casses,*'

with the direst enemies of the bees, equally, indeed, with the '*dirum tinea genus,*'—the dreadful race of moths, which is by no means so destructive in our climate as in warmer regions of the earth.

And here let us say one word in praise of the Italians. In many parts of America where moths abound, and are most destructive to the bees, it is found almost impossible to keep the black race at all, since it almost universally falls a prey to these much-dreaded insects; but there is scarcely a case on record of an Italian colony having succumbed to their attacks; so perfect is the watch and guard kept by the golden-banded race, that the enemy is never allowed to gain an entrance at their doors.

Amongst birds the blue titmouse—*Parus major*—is the most destructive during the winter and spring months. Mr. Purchase, an old writer on bees, tells us that 'she will eat ten or twelve bees at a time, and, by-and-by, be ready for more. When she comes to the hive and finds none, she knocks with her bill at the door, and as soon as the bees come out to inquire the cause, she catcheth, first one and then another, until her belly be full.' Upon this passage Mr. Payne, a later authority, remarks, 'I have observed the same thing in an apiary of about twenty hives, in a neighbouring village, for the last two winters; the entrances to the hives, by the end of winter, having the appearance of being gnawed through by rats, which has all been done by these birds. Shoot and trap them in winter, and destroy their nests in breeding time.' In our own experience, sparrows may be placed in the same category as the most persevering enemies of bees, both in winter and summer. The depredations of these birds are too often laid upon the swallow, which, as a rule, preys upon smaller insects than bees, and, at all events, cannot be credited with their destruction in winter.

Feeding, so late as November, will sound strange to those whose colonies are well provisioned, and comfortably settled in winter quarters. To hives, however, with plenty of bees and but little food—which may be the case with many apiarists who have had no opportunity of completing their feeding, owing to the inclemency of the weather—it is advisable to give thin strips of candy between the frames, at the bottom, on the floor-board. In skeps the food may be pushed in between the combs; and although in cold weather the bees will be unable to reach it, nevertheless in warm days they will descend and feed on the candy thus placed.

By this plan there is less fear of colonies being injured by deliquescence of the food than by placing it above the frames—the best system as spring approaches. Pieces of honey-comb, taken from unfinished sections, or from frames of comb, may be given below, when combs are not fully built out. Wintering of colonies of this class is only useful with a view to preserving the queens and bees for uniting to queenless stocks at spring, of which, in a large apiary, there are generally some to be found at a time when it is almost impossible to procure queens at any price.

Keep a keen eye upon covers, stands, &c. If the former are blown off during storms, and the hives become saturated with rain, the bees must perish, for at this time it is next to impossible to dry them again, bearing in mind that prevention, at all times and under all circumstances, is better than cure. We may consider now that winter is upon us. May our colonies pass safely through the trial, and come out flourishing at spring.

REPORT OF EXAMINERS.

Report of the Board of Examiners on the Examination for First and Second Class Certificates, held on May 16th, 1885, at South Kensington.

Six candidates submitted themselves for examination, four of whom held second-class certificates, and the remaining two third-class only. The result of the examination showed that of these candidates three only succeeded in obtaining first-class certificates, viz.:—

1. White, C. N., Somersham.
2. Fewtrell, F. Reading.*
3. Webster, W. B., Wokingham.*

We regret to state that, speaking generally, failures occurred chiefly in the *viva voce* and the lecturing portions of the examination, although several candidates failed to satisfy us in the general knowledge of the subjects of examination, displayed in their written or paper-work; and we would express a hope that future candidates will bestow more attention on the general subjects as set forth in the Syllabus, and upon lecturing in public, where terseness, but at the same time clearness and

* These candidates held third-class certificates.

simplicity, with a thorough knowledge of the subject, are of the utmost importance.

THOS. WM. COWAN, F.G.S., F.R.M.S., &c., (*Chairman.*)
E. BARTRUM, D.D.,
HENRY BLIGH,
GEORGE RAYNOR, M.A.

Mr. H. Dobbie, of Thickthorn, Norwich (to whom we are indebted for several interesting papers on honey and pollen-yielding plants), was awarded a second-class certificate at the second-class examination held at Norwich previous to the date of the examination held at South Kensington.

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

The monthly meeting of the Committee was held at 105 Jermyn Street, on Wednesday, October 21st. There were present—T. W. Cowan (in the chair), the Hon. and Rev. H. Bligh, Dr. Bartrum, the Rev. F. S. Sclater, Capt. Campbell, R. J. Hinton, J. M. Hooker, D. Stewart, G. Walker, and the Secretary. Letters were read from Capt. Bush, the Rev. F. G. Jenyns, and the Treasurer, regretting their inability to be present. The minutes of the last meeting were read and confirmed. The attention of the Committee having been called to the fact that the Royal Horticultural Society proposed to renew their provincial shows as held in former years, it was resolved that the Secretary do communicate with the Secretary of the Royal Horticultural Society, and ascertain if the B. B. K. A. could hold an exhibition of bees, hives, honey, &c., in connexion with the Royal Horticultural Society's Exhibition upon favourable terms. It was resolved to issue a leaflet on 'Honey as Food.' The Rev. Dr. Bartrum and the Rev. F. S. Sclater were requested to prepare such a leaflet, and submit the same for the consideration at the next meeting of the Committee.

It was resolved to issue a new edition of the pamphlet 'Wintering Bees,' and the Chairman was requested to revise the same previous to its publication.

The next Committee meeting was fixed for Wednesday, November 18, and the Committee having transacted some routine business resolved itself into the usual Quarterly Conference with the representatives of County Associations; there were present, Mr. J. Bowly (Berks), the Rev. Astley Roberts and Mr. R. T. Andrews (Herts), Mr. W. N. Griffin (Devonshire), Mr. A. H. Martin (Worcestershire), the Rev. W. E. Burkitt (Wilts), the Rev. E. K. Clay (Bucks), Mr. C. H. Haynes (Worcestershire), Mr. F. H. Meggy (Essex), the Rev. V. H. Moyle (Berks), Mr. T. Waterer (Surrey), and Mr. Jesse Garratt and the Rev. T. Sissons (Kent).

The consideration of 'Suggestions for the Management of County and Local Shows' was resumed. On hives, it was moved by Mr. Garratt, and seconded by the Rev. W. E. Burkitt, 'That each part capable of being detached should be marked by the exhibitor previous to its being sent for exhibition, with the number of the exhibit and the class in which it is to be exhibited;' the object of such an arrangement being to prevent any portion of the hive being lost at the show. It was further considered advisable that all hives should be packed as simply as possible, securely in a crate opening at the top, the top of the crate being screwed down (not nailed) with as few screws as possible. When hives are not forwarded in crates the legs should be braced together, the cover and other parts of the hive being kept firmly together by a strong cord or otherwise. No hive should bear any label or trade-mark that indicates ownership previous to its being judged.

In reference to comb honey a very lengthened discussion took place, the following being the chief points debated upon:—

(1) Whether it was not advisable for all sections to be glazed on both sides.

(2) If glazing was insisted upon, should paper edging be allowed?

(3) Whether it was advisable to compel an exhibitor to glaze so large a number of sections as are often exhibited in the larger classes?

It was pointed out, that if glazing sections on both sides was insisted upon, it would prevent them being exhibited in the small fancy boxes with glass fronts which are now so largely used. On this point it was contended that the judge ought to be able to see both sides of the section clearly, without having to remove them from the crate or box; and, further, if sections were glazed on both sides, the honey was protected from the bees, the presence of which often kept a very large number of people from visiting the bee departments of the various shows. Ultimately it was resolved, 'That all sections should be glazed on both sides in order that they may be removed from the crate, or box, previous to the inspection by the judges.'

The remaining portions of the suggestions, namely, those relating to extracted honey, and rules for the guidance of exhibitors, were adjourned to the next Quarterly Conference.

A Conversazione was held at 6 p.m. There was a large attendance of members, including several ladies, the County representatives, and Mr. Stewart, the Hon. and Rev. Henry Bligh, Mr. Hooker, Captain Campbell, the Rev. F. S. Sclater, Mr. Otto Hehner, Mr. Zehetmayr, Mr. Baldwin, Mr. Henderson, Mr. Drinkwater, &c.

On this occasion the usual custom of reading a paper on a specific subject was departed from in order that the attention of the meeting might be drawn to various topics relating to bee-culture, which were submitted for discussion by different members. The proceedings assumed, therefore, more of the style of a *Conversazione* than heretofore.

Mr. Stewart presided, and said he would first call upon Mr. Hehner to give a description of some recent discoveries he had made in respect to the analysis of honey, &c., after which there would be an exhibition of interesting objects under the microscope, and also some new appliances in relation to bee culture.

Mr. Hehner said he only intended to make a very few somewhat disconnected remarks, which would be chiefly replies to questions that had been addressed to him from time to time as analyst of the Association. He had been asked whether it was not possible to give wax specific colours. It was easy enough to mix a solid colouring matter with wax, but in the case of wax candles a solid colouring matter would concentrate in the wick, and prevent the light from burning. It was therefore necessary to have only colours which were volatile, like arsenical or mercurial colours for instance. It was impossible to dissolve in wax any colouring matter with which he was acquainted. The only way of obtaining a colour-tinted wax was to dissolve organic colours, preferably aniline colours, in substances capable of mixing with melted wax. He used either aniline or nitro-benzole for this purpose. Of this solution a few drops used with the wax imparted any desired heat to it, without materially interfering with the properties of the wax. This he had done, and brought samples for their inspection. [Mr. Hehner then handed round several specimens of different-coloured wax.] He thought probably this question had been raised by those who were desirous of improving the colour of bad wax.

They would remember that on a previous occasion of his addressing them on the composition of honey, he had hinted at the possibility some day of an imitation of that commodity being manufactured so success-

fully that it would be next to impossible by analytical means to discriminate the genuine from the spurious article. He stated that cane sugar could, by the action of an acid—preferably oxalic acid—be converted into a mixture of dextrose and levulose, which were the constituents of honey, and the acid might then be so completely removed that no evidences might be left of its ever having been there. Unfortunately he was injudicious enough to explain this matter too much in detail, for the manufacture of such an article had been, no doubt, hastened by these remarks. An enterprising firm had manufactured some honey on the lines laid down on that occasion. That firm had, however, with considerable honesty, labelled their production 'manufactured honey.' [The speaker then exhibited a bottle of the particular honey referred to.] He was, however, exceedingly glad to be able to announce that he had discovered means of most readily distinguishing between this artificial product and natural honey. In order, however, not to defeat his own ends as Public Analyst, he would ask the permission of the meeting to abstain from describing or detailing the differences and the mode of analysis.

In the course of his experiments it had occurred to him that a product which had been formed by a plant and passed through the body of an animal must contain some of the universal salts which went to build up the skeleton of that animal, and he had found, in accordance with that idea, that there was a notable proportion of phosphoric acid in honey. The amount of this acid varied to a great extent with the colour of the honey. It generally ranged between $\frac{1}{1000}$ and $\frac{3}{1000}$ per cent. The colour of genuine honey was generally proportionate to the amount of phosphoric acid it contained. The more mineral phosphate it contained the darker it was.

There was, no doubt, a great difference between the taste of genuine honey and this particular manufactured article, but in mixtures such difference might not be distinguishable.

A very simple test for glucose honey, which had not been previously described, was also given by the speaker. It consisted in burning a quantity of the honey to be examined until nothing but a white ash was left. In the case of glucose honey this ash was strongly alkaline, in that of glucose, or honey adulterated with glucose, it was quite neutral.

He had been asked to state what temperature honey should be heated to in order to prevent its crystallising. He could only say that he had never yet heated a sample of honey which would not crystallise after heating as hard as it had ever done before. He had before him four specimens of the same sample of honey. He had heated them up to different temperatures—one to 65° Centigrade, which was about equal to 150° Fahrenheit, and after three or four days this had again become quite solid. Others, which had been submitted to 75° and 80° Centigrade, were just beginning to become hard, and one which had been raised nearly to the temperature of boiling water had commenced to thicken. He did not believe that the heating of honey had any permanent effect at all. This matter opened a question of considerable importance to bee-keepers, which was, Should honey be kept clear at all by heating? His own opinion was that it was inadvisable to use artificial means to prevent crystallisation. They all knew that genuine honey would crystallise, therefore why interfere with the course of nature? The fact was, the public had been wrongly educated to believe that unadulterated honey should always be clear. The enormous amount of good done to bee-keeping by the bee and honey shows was not, in his opinion, unalloyed with mischief in that respect, because at shows only bright and clear honey had a chance of a prize, and therefore exhibitors had often to keep their exhibits clear by heating or other artificial means. He thought it a question, which should be earnestly discussed, as to whether it would not be desirable to place crystallised honey on the same footing as clear honey.

To the subject of crystallisation some attention should be paid. Honey should not be allowed to crystallise anyhow or as it pleased. It should not contain hard lumps of crystals, or have a sediment of crystals with a layer of thin fluid honey above it. He had made some experiments on this subject and related how smoothly crystallised buttery honey could be obtained from any honey that was inclined to crystallise at all. In fairly cold weather a little crystallised honey should be mixed with that to be candied, and the whole gently stirred with a rod or spoon. Crystallisation soon sets in—often in a few minutes—generally in a day or two, when an occasional stirring would result in an even, smooth mass, similar to Narbonne honey. He thought by some such innocent means crystallisation should be regulated, and candied honey would again come into repute and into use. The ardent desire to have nothing but clear honey worked directly into the hands of manufacturers of spurious compounds. No doubt crystallisation could be prevented, but he deprecated any manipulations to that end.

During this year a great deal of dark honey had been produced, which was of small value in the market, and he had been asked whether it would not be possible to add something in order to bleach the honey, and make it lighter. In answer to that he must say that it was quite easy to bleach the honey, but simultaneously with the colour the flavour was bleached also. By adding from two to four per cent of perfectly innocuous hydrogen peroxide solution to such honey the colour was much improved, but the aroma had vanished.

He would be glad to hear the opinions of the members present as to how far any artificial treatment of honey was permissible. In conclusion, he thanked the audience for the patient hearing they had given to the few cursory remarks he had made.

The Rev. E. K. Clay said he was sure every one present agreed with Mr. Hehner respecting the undesirability of tampering with honey. Any artificial means of altering its colour or flavour should be avoided. There was a great deal of ignorance among people outside the bee world as to what good honey was. They thought it ought to be liquid all the year round, and they never considered it pure when granulated. On one occasion he had the greatest difficulty in persuading a lady that it was natural for genuine honey to granulate. He was of opinion that exhibits of old honey should be encouraged at the local shows, and that the Association should establish a special class for that purpose. He was glad to hear that any attempt to alter the colour of honey would affect its flavour, because he was opposed to adulteration for any object.

Mr. Zehetmayr thought the fact that all matters passing through an animal body contained phosphate of lime would, with further investigation, enable Mr. Hehner to distinguish to a certain point between honey gathered from flowers and that collected from the deposits of the aphides, because it seems evident that honey collected from these deposits, having passed twice through an animal body—first through the aphides and then through the bees—must contain a greater percentage of phosphate of lime than honey gathered from blossoms and flowers. He is quite aware that it will be difficult, if not impossible, to draw an exact line; but it would be very interesting, and useful too, to know the limits of the quantities of phosphate of lime that are usually contained in both honey from flowers and honey gathered as far as possible from only the deposits of the green fly.

With regard to crystallized honey he agreed perfectly with Mr. Hehner, viz., that it should be put on exactly the same level as that in a liquid state. As crystallization does in no way deteriorate honey—the fact that crystallized honey is much better adapted for travelling

with far less risk for loss—will commend itself to those who have had experience in this way.

Mr. Hehner said he had examined some honey-dew which had been given to him by a well-known bee-keeper, and had found therein a relatively large quantity of phosphoric acid—about thirty-five thousandths per cent.

The Rev. V. H. Moyle having risen in response to an invitation from the chairman, expressed the great pleasure with which he had listened to Mr. Hehner's very practical remarks in common with others present, and narrated cases of early and late granulation of honey which had come under his notice; turnip honey seemed to granulate very early. He thought it would tend to educate the public more in this matter if granulated honey were shown more at bee-keepers' exhibitions, as there was a too prevalent error that granulated honey was honey mixed with flour. He would suggest to practical scientific men the thought whether they could not invent a 'mellometer,' to guage the adulteration of honey as they had a 'lactometer' to test the adulteration of milk.

Mr. Andrews said it had been stated that the crystallization of raw honey could be accelerated by the mixing with it of some honey crystals. If that be so perhaps the same result could be brought about by the addition of flour or other meal to run honey, which method if successful probably many would adopt. Of course the Association wished to guard against such an evil. He thought the exhibition of crystallised honey should be encouraged, but he would be glad to know how it would be possible to judge it at shows.

Mr. Hehner thought that the addition of flour or meal to liquid honey would not hasten crystallization.

The Rev. E. K. Clay did not intend to suggest that old honey could be put in competition at shows, but merely sent there for exhibition, so that the public might see that honey would keep for several months.

The Rev. F. S. Sclater quite agreed that old honey should not be sent to shows for competition, but merely as a matter of educational importance, so that the public might see how it was preserved, and its appearance under such circumstances. They would then understand that honey must crystallise sooner or later, and their prejudices on this subject would fade away. He thought that the authorities should provide a case at all shows in which specimens of old and peculiar honey should be exhibited. Also it would be desirable to publish a short account of some of the most simple tests for finding out whether honey was adulterated or pure.

The Rev. T. Sissons stated that on entering a grocer's shop at a popular watering-place last year he saw some liquid honey in pound jars. The grocer informed him that the public liked honey to be liquid, and the charm of the particular honey he had was that it never crystallised. Some of it had been in his possession he stated twelve months, and there had been no change in its consistence during that time. Undoubtedly the popular idea was that the only pure honey was liquid. He thought it was the duty of the Committee of the Association to protest with all its power against any interference with the products of nature in the case of honey and wax. There was no need to bleach or alter the colour of either, and he believed it would be fatal to the interests of the Association to countenance any such tampering.

Mr. Garratt said it would be very desirable if bee-keepers could be educated with regard to the way of treating honey while in the process of thickening, so that there might be a proper and regular granulation. Shop-dealers considered the Narbonne honey stood highest in that respect, and might be taken as a standard. He thought there must be some simple plan of controlling honey in that state—perhaps by keeping it always in a certain temperature. Perhaps Mr. Hehner could tell them whether there was any mechanical or other means of dealing with honey so as to induce a regular white crystallisation. He had heard that by rapid stirring and the introduction of plenty of air that end was attained. He confirmed the observations of previous speakers regarding the ignorance of the public respecting honey, and mentioned a case in which the squire of a parish was under the impression that crystallised honey was adulterated with flour.

Mr. Hehner was sure that if plenty of air were stirred into honey a light colour would be obtained, because the crystals would become smaller, and the greater the number of crystals the greater the number of points for reflection.

Mr. Baldwin said that no doubt the Association and the judges were somewhat responsible for the feeling of prejudice against thick honey. Prizes were given for liquid honey only. He thought there ought to be some method of testing the honey, and prizes awarded without reference to whether it be thick or thin. Let them consider the anomaly of the present system. An exhibitor could produce samples of liquid honey and set honey from the same hive, yet the one which has been kept warm, and prevented from granulating, took off the prize, while the other was not noticed. They all knew that honey would granulate, therefore it was not worth while to attempt to disguise the fact any longer. In that condition it was much more portable, and easy to send about from place to place, which was a fact not to be ignored.

Mr. Hooker said, in reference to Mr. Baldwin's remarks, that he was one of the judges at the York Show, and with the concurrence of another judge he awarded the third prize to an exhibitor for a sample of crystallised honey. It was a production of the same year. If they were to have only run honey on exhibition, they would exclude all the honeys which set quickly, such as those produced from rape mustard, which become thick often at the beginning of July. In a moderately warm place he had kept honey through the year, without crystallisation ensuing, and he had known of cases in which it had been preserved three years without crystallising.

The Rev. E. K. Clay asked Mr. Hehner whether unripe honey would granulate quickly.

Mr. Hehner thought not, but was of opinion that it would ferment rapidly. No doubt honey heated nearly to temperature of boiling water would keep longer.

Mr. Griffin said that one sample of honey which he had heated to 194° remained perfectly liquid, whilst another, an Irish honey, heated to 198° had crystallised.

Mr. Meggy quite agreed that prizes should be offered for set as well as run honey, but the fact could not be gainsaid that in the liquid state it was more pleasant to eat, and that being so he thought they might while desiring to tamper with honey as little as possible, try and find out some means of preventing crystallization.

Mr. Hehner admitted that it was possible by scientific means to prevent crystallization, but deprecated any tampering with honey, because when once the thin edge of the wedge was sanctioned manufacturers would not know where to draw the line. He saw no reason why liquid and set honey should not stand on an equal footing. If they were to encourage the show of crystallized honey the spurious productions would soon vanish.

The Chairman thanked Mr. Hehner for his valuable assistance. That gentleman was really one of the worker bees, for he was at work like them day and night in favour of the objects of the Association. They would all remember Mr. Godfrey's show of crystallized honey at the Health Exhibition. Specimens of that kind were well known at the Lincolnshire shows, where the honey set quickly.

Mr. Garratt described an experiment he had recently made with a straw skep turned upside down and produced the reversible skep for inspection. He said the idea occurred to him during that spring when he found

that the bees laid out and did not swarm. He could of course have made them swarm, but it was not convenient, and he preferred to have a big swarm when they did come out. He thought they had been idle long enough, and he would try an experiment with them. It was an experiment so far as he was concerned, because he did not know till recently that something similar had been tried in America. He found the bees as described, and he decided to make a bed for the hive and invert it. This being satisfactorily done, he at first supered without an excluder. As soon as the bees began working out the sections he found in consequence that the queen immediately went up and spoilt several of the sections. He remedied this by putting on the excluder. In inverting he took the precaution of passing two skewers through the hive. The combs retained their perpendicular position and were immediately attached to the adaptor. The result of this was that he was able to take forty-eight completely finished sections, although the experiment was made comparatively late in the season. The bees were satisfied with their new quarters, and they worked rapidly. He thought that system was a certain way of getting bees into the supers at once. On removing the supers he found that the bees did not appear to have been impeded in their labours in consequence of the inversion of the hive. The conditions seemed in every way normal, and he had not discovered anything that might be regarded as a drawback to the plan described. The experiment was not confined to one stock of bees, but several were treated in the same way and with equivalent results.*

Mr. Hooker said he had on many occasions seen Mr. Garratt's bees working under the conditions described. They appeared to be vigorous and healthy. He had no doubt that the queen was rearing brood at the top of the hive. It was his opinion that the inclination of the cells was altered by the bees during the time that the grubs were hatching out.

Mr. Andrews thought Mr. Garratt's system would be of no advantage to the cottager. From his own experience of skeps in their normal condition, he believed as much honey could be obtained as by the new method. The latter might be an improvement, but there seemed to him to be several objections to it. It interfered with the natural working of the bees; it upset their house, it altered their cells, and compelled them to put the brood in a different place; it also obliged them to move their stores. Besides, the cottager had no time to try such experiments with his bees. He was occupied from early in the morning till the evening at his work, and consequently could not give the time and attention necessary to carry out successfully such a plan. Nevertheless he was much obliged to Mr. Garratt for bringing the subject before the meeting.

Mr. Hooker and the Rev. T. Sissons admitted that the system in question gave the bees some extra trouble in regard to their household arrangements, but if more honey could be obtained thereby, that was the important point to consider.

Mr. Meggy feared there were manifest disadvantages in leaving the hive reversed for the winter. Its base was so small that it would run the risk of being blown over, besides which he should think it would be very cold in that condition.

Mr. Garratt said no doubt the bees would be caused extra work by his system, but that was not a question for them to consider. Bees delighted in work, and the object of bee-keeping was to obtain as much honey as possible. By his method the bees were got to work in the supers without any delay.

Mr. Baldwin asked what the bees would do for the winter food if upon the skep being reversed they removed all the honey from the comb and put it into the supers.

* Mr. Garratt has undertaken to supply us with illustrations and describe more fully, in our next, the details of his plan and the working thereof.—Ed.

Mr. Hooker said the hive would be in no worse condition than in a case where the honey had been all extracted, and that the bees must be supplied with food during the winter.

Mr. Garratt was glad to see the amount of interest taken in the matter, and promised to make further investigations in reference thereto.

Mr. Andrews exhibited several very accurate drawings he had made of various kinds of bees, as well as of different portions of their bodies. He also showed a specimen of a death's head moth which had been found in a skep. He understood such occurrences were common in different parts of the kingdom. He believed these moths found their way into hives for the sake of the warmth and the honey, and he could not but think that these insects had some special power of resisting bee-stings.

Mr. Zehetmayr said he had been told of a case in southern Italy in which sixty-two death's-head moths had been found in five hives, eighteen being discovered in one hive alone. His informant had seen these moths go in and out of the hives almost without molestation by by the bees.

The Chairman thanked the different gentlemen who had initiated subjects for discussion, and also those who had kindly brought their inventions and drawings for exhibition. Mr. Simpson had been kind enough to bring his miscroscope and several objects for examination. Among other objects brought for exhibition were Mr. F. Benton's shipping-cage, Mr. Stocks' show-crate, Mr. Nicholson's skep-union, Mr. Redshaw's feeders, Mr. Simmins' amateur feeder, &c.

The Rev. T. Sissons proposed a vote of thanks to Mr. Hehner and the Chairman. He thought it would be very interesting if members would bring to the meetings photographs of their apiaries from time to time, so that friends might be able to view the position and arrangements thereof, which could not fail to be instructive.

The Rev. V. H. Moyle seconded the motion, which was briefly acknowledged by Mr. Hehner and the Chairman.

DORSETSHIRE BEE-KEEPERS' ASSOCIATION.

The annual show of the above Association was held at Dorchester on October 21st, in connexion with the Agricultural Show. The Association were this year obliged to confine the schedule to honey only, through last year getting the balance on the wrong side. The exhibits occupied 90 feet of staging, and the quality was everything that could be desired.

The first prize for exhibition of honey in comb was awarded to Mr. J. Antell, who had a very nice collection. Mr. Dunman, who was second, had an exhibit four times as large in quantity, but not so good as regards quality. Several other collections were worthy of commendation, especially one sent in by the Rev. N. W. Gresley, of Milborne St. Andrew. Mr. Antell also won the champion prize, the silver medal given by the British Bee-keepers' Association, but only after a very severe contest with Mr. Dunman. For something like half-an-hour the judges were deliberating before they could come to a final decision as to the presentation of this award. The run honey was of all colours and shades: the first prize eventually was given to heather honey, clover this year having fallen off considerably in merit. It was a source of great regret cottagers did not exhibit as was hoped, but the two lots of honey sent in by Mr. James Woodland were considered deserving of the prizes offered, and they were consequently awarded to him.

The following are the awards:—Honey.—Exhibition of honey in the comb—1st, 10s., Mr. J. Antell, Puddletown; 2nd, 5s., Mr. W. H. Dunman, Troytown. 24lb. section of comb honey—1st, silver medal and 10s., Mr. J. Antell; 2nd, 7s. 6d., Mr. W. H. Dunman; 3rd, 5s.,

Mr. R. M. Williams, Cranborne. 24lb of run honey—1st, certificate and 10s., Mr. R. Coles, Wareham; 2nd, 5s., Mr. J. Antell. Labourers' classes: 12lbs. of honey in comb, the produce of bees *bonâ fide* the property of the exhibitor—*1st*, bronze medal and *7s. 6d.*, Mr. J. Woodland, Troytown. 12lbs. of run honey, the produce of bees *bonâ fide* the property of the exhibitor—1st, certificate and *5s.*, Mr. J. Woodland, Troytown, Dorchester.

MONMOUTHSHIRE BEE-KEEPERS' ASSOCIATION.

ABERGAVENNY.

At Abergavenny, on the 27th of August, the above Association held their show in connexion with the Abergavenny Floral and Horticultural Show. The Association had their tent on the ground, when the expert, Mr. M. Meadham, manipulated the bees. Unfortunately, it was a very wet day, and consequently very bad for driving, and therefore not so remunerative as other meetings held at Newport and Maindee had proved. The following prizes were given:—

Class 1.—The best complete hive on the moveable comb principle, price not to exceed *15s.*: 1, J. R. W. Hole; 2, M. Meadham; 3, not awarded. Class 2.—Best hive as above, price not to exceed 10s.; 1 and 2 equally between J. R. W. Hole and M. Meadham; 3, not awarded. Class 3.—Best hive made for general use, made by an amateur or cottager; a hive value 10s. given by Mr. M. Meadham, expert to the Association. The very wet weather prevented any exhibitors attending. Class 4.—Best exhibition of super honey; 1, silver medal and 10s., Major-Gen. Gillespie; 2, Miss Jackson; 3, Mrs. James Oakeley. Class 5.—For best exhibition of twenty-four bottles of run or extracted honey; 1, bronze medal and 10s., Major-Gen. Gillespie; 2, Mrs. James Oakeley; 3, Mrs. R. Phillips. Class 6.—For best super of honey; 1, Mrs. James Oakeley; 2, Miss Clark; 3, Mrs. Carlisle. The exhibit in this class taking first prize was a bell-glass containing 30 lbs. of honey. Class 7.—Best exhibition of comb honey taken from one hive without destroying the bees, the exhibitor being a cottager; 1, certificate of merit given by B. B. K. A. and *5s.*, Mr. Sparrow; 2, not awarded.

Life-duration of Microbes.—M. Duclaux has written a paper on the duration of life of the germs of microbes. He has studied some organisms preserved since the first researches of M. Pasteur, in 1859, under the most varied conditions—in various liquids, sheltered from or in contact with the air, also dry, in darkness and in light. The germs sheltered from the air and in liquids slightly alkaline show the greatest vitality. Out of sixteen flasks in these conditions, fifteen have shown fertile germs after twenty-three or twenty-four years. The limit of life under these conditions is not known; but it must be added that they are rarely realised in nature. In all the flasks wherein the liquid had an acid or a strongly alkaline reaction, the germs had perished. The species which showed most resistance are:—Among the mucedines, *aspergillus niger*; among the micrococci, *urococcus virax*; among the bacilli, *tyrothrix tenuis*, *tenuior*, *tenuissimus* and *filiformis*. These species, at the same time, resist most the action of heat. The spores of many can support a temperature of 110°–115° C. without perishing. In the adult state these same species are less resisting, both as to time and heat. In a liquid exposed to the air the resistance is observedly inferior. Bacilli and yeast are still more resisting than micrococci. Further, the germs weaken rapidly in these conditions. It is known that M. Pasteur utilised this action of the air in order to obtain the attenuation and transformation in vaccine of many ormidable pathogenic microbes. But it is when dry in the air, and especially exposed to the sun, that the life of germs is much shorter. The *aspergillus niger* of M. Raulin was alive (in the spore condition) after being twenty-two years in a liquid sheltered from the air; but has always been found dead after being kept three years in a closed tube, dry, and in the dark. The *tyrothrix filiformis*, whose resistance in a liquid sheltered from air is not less, perishes after thirty-five days' exposure to the sun. 'This testifies,' says M. Duclaux, 'to the special action of sunlight; . . . . and the old physicians had ground for regarding the rays of the sun as powerful hygienic agents.'

Pollen.—Mr. A. S. Wilson (Bot. Soc. of Edinb.) found that an anther of wheat contained 6864 grains of pollen: that 390,000 of them weigh one grain; and that an acre of good wheat produces about 50lbs. of pollen, while an acre of rye produces about two cwt.

The Poison of Hymenoptera.—The denticulated sting of bees, wasps, and hornets, is charged with poison secreted by two glands. According to M. Carlet, of Grenoble, the secretion of one of the glands is acid, and that of the other alkaline. The poison only produces its customary effects when both acid and alkaline fluids are present in the poison, which is, however, acid in reaction. In wasps and hornets the venom is injected by means of a vesicle with contractile walls. In bees the poison-bag is not contractile, and there exists a kind of piston that works in the fang as a syringe, so that the syringe is charged and emptied with each stroke by the piston.—*English Mechanic, October 16th.*

Foreign.

SWITZERLAND.

Is it possible to force the Queen to lay at all seasons of the year?—In September, 1883, we examined in the neighbourhood of our apiary a number of moveable comb hives, and as the weather had been very moist, fresh flowers had given the bees a small daily income of honey. There was, notwithstanding this, very little brood, and generally but a small quantity of capped brood. In October of the same year, we went to Touraine to help a friend, who possessed fourteen colonies in large frame-hives, to gather in his harvest of honey. There was a large quantity of wild mustard in the neighbouring vineyards; the weather was damp, the temperature mild, and the bees collected honey daily, for it was visible in all the hives. However, when we examined the honey about the middle of October, it was quite the exception to find any brood; most of the colonies had none at all, one or two only had capped brood and very few eggs; notwithstanding the small quantity of honey coming in daily ought to have stimulated the queen to lay. None of the hives had given a swarm, and nearly all the colonies were strong for the season. These observations seem to prove to us that the queen, after the principal laying season, has need of rest, and that even the daily natural income of honey does not force her always to lay, as is generally supposed.—G. de Layens, *Bulletin d'Apiculture de la Suisse Romande.*

SOUTH AUSTRALIAN BEE-KEEPERS' ASSOCIATION.

We have much pleasure in taking a few extracts from the first report of this very promising Association:—

'Your Committee think that the fact of this being the first Association of the kind organized in Australia is a matter for congratulation, and shows that this colony is at present ahead of her neighbours in apiculture.

'There are now thirty-nine members in the Association, and it is expected that this number will be increased as soon as the weather becomes warmer.

'Two shows of bee-keeping appliances, honey, and bees

have been held, one in connexion with the Flower Show at the Town Hall on November 27th, 1884, and the other at the Royal Society's Autumn Show in the Exhibition Building on March 5th, 1885.

'South Australia, with its mild climate and numerous honey-producing trees, is eminently suited for bee-culture, and it is therefore not surprising that some large returns have already been recorded. As far as is yet known, the common red and blue gums are the best sources of honey, and it is to these trees that Messrs. Coleman and May, of Mount Barker, are indebted for their bountiful harvest of last season. They report as follows: "Number of hives at commencement of season, 27; present number, 109—none were bought after the season commenced. Comb honey taken, 4879 lbs.; extracted honey taken, 9413 lbs.; total amount of honey, 14,292 lbs., or 6 tons 7 cwt. 2 qrs. 12 lbs. Average from each of the original twenty-seven hives, 529 lbs. Most extracted honey taken from one hive, 414 lbs.; most comb honey from one hive, 164 lbs." This splendid average of over 500 lbs. of honey per hive is certainly very satisfactory, and gives cause for speculation as to the possibilities which may yet be reached. Your Committee trust that the inexperienced will not be led away with the idea that any one can secure the same results, and that in modern bee-keeping there is no such thing as hard work.

'Messrs. Coleman and May are not only skilful and experienced apiarists, but they have an aptitude for the work which is not possessed by all persons. Moreover, they are situated in one of the most fertile districts in the colony, and are surrounded by a variety of beautiful gum trees. They use the standard Langstroth hive, and speak very highly of those obtained from Messrs. Bagnall Bros., of New Zealand.

'Your Committee feel that this report would not be complete without a notice of the introduction and establishment of Ligurian bees in South Australia. The Hon. R. D. Ross, who has always taken a deep interest in bee-keeping, when speaking at the annual meeting of the Chamber of Manufactures on August 2nd, 1883, urged the advisability of introducing the Ligurian bee, and pointed out the advantages possessed by this superior variety of the honey bee. The Chamber promptly took action in the matter, and ordered a hive of these bees from Queensland. They came from the apiary of Mr. Chas. Fullwood, and arrived safely in Adelaide about the end of November. Several pure colonies were reared from this stock, and two of them were sent to Kangaroo Island, where they appear to thrive well.'

BURMAH.

Apis Dorsata Once More.—The colony of *Apis dorsata*, mentioned on page 208, after staying for twelve days with me, has absconded, and I hasten to give the results of my first experiment with this bee. 1. Why did the bees abscond? On examination of the comb I found about half a pound of brood had been jammed into a fold of the comb made when putting the comb into the basket for transportation from the hills. It was smelling very rank, and of itself was enough to drive them off, doubtless. 2. I am not sure they had a queen. Before I got them into shape, about a quart of old bees swarmed up on a limb of a tall mango-tree, and after two days they left. At first the entrance to the hive was too small, and I think they could not readily find their comb, and so left. The queen might have been among them. 3. Perhaps this bee cannot be made to stay in a hive at all, yet I am not at all satisfied that this is the case, and shall not be without much more experience.

We have gained some knowledge by this experiment. The young bees, when first hatched, are long and slender, very graceful in their shape and movements, of a soft dark yellow, approaching brown, which changes as they grow older. The abdomen grows fuller, and black bands appear, until the bee appears much darker, not only on the abdomen, but all over. The head, however, at first changes to jet black. As there was a very little unsealed brood when I got them, and all hatched out in twelve days, I judge the time from egg to bee is about twenty-one days, as with common bees.

The comb of the *Apis dorsata* left with me measures about 2ft. long by 1½ft. deep. The honey-comb and and brood-comb are quite distinct. The honey-comb is placed always *highest* up on the limb of the tree on which the nest is built. From this, which is on the right in my comb, the brood-comb extends to the left, new comb being added along the whole edge, from the honey-comb around to the limb again. The honey-comb is three inches thick in its thickest part, but built in a cylindrical form. The natives say they have seen this honey-chattei 6in. in diameter. The cells are 1⅜in. inches deep, and less as the slope changes. There are three honey cells to the inch. This comb is beautifully white, and the walls of the cells are almost transparent. Honey is also deposited among the brood, but it seems to be of a different kind from that in the honey-chattei.

The brood-cells are from ½ to ⅝ of an inch deep. The number to the inch varies from 4 to 4½, or 23 cells to 5 square inches. The brood-comb varies a little in thickness, and is about 1⅜in., and is a light brown in colour. These bees on the comb form one of the most beautiful sights in nature I ever saw. During their stay they built comb and brought honey and water, but they did not at any time work as if they were happy. Just before leaving, there was great running to and fro, and preening of wings and legs, preparatory to flight. Not more than half-a-dozen bees were left. I put one, just hatched out, on the alighting-board of an *Apis indica* colony, and it immediately marched in like a queen, and the bees all made way for it. I suspect they got over their surprise and slew it, but I have not seen any results of such punishment. So much for experiment No. 1 with *Apis dorsata*.—A. Bunker, *Toungoo, Burmah, March 18th, 1885.*—(*American Gleanings.*)

PFARRER DR. DZIERZON.

A BIOGRAPHY WRITTEN BY HIMSELF.

I was born on the 16th January, 1811, at Lowkowitz, near Kreuzburg, Upper Silesia, my present dwelling-place, where my parents, Simon and Maria, owned a farm. They had two more children, a daughter two years older than I, who is dead, and a son my junior by three years, who is still alive. I attended the School of Lowkowitz until I was ten years old, when my parents sent me to the town school of Pitschen, one German mile distant; and a year afterwards to Breslau, where I finished my studies at the University. I was fortunate enough to be first in every class of my College, and left the University in the autumn of 1830, having passed No. 1, and obtained a certificate, which was very flattering indeed.

From early childhood I had a great fancy for bees, of which my father kept a few colonies in hives made of logs of wood mostly placed in an upright position, which were at that time in general use in Silesia. I always found my greatest pleasure in the contemplation of the indefatigable industry of bees and the wonderful way in which they build their comb. While I studied at the University I generally took my walks where I knew an apiary to be or a colony of bees in a hollow tree, in order that I might enjoy, if only for a moment, the sight of these industrious insects and their joyful humming.

My partiality to bees even determined my choice of a vocation. Life in an office or at the desk seemed unbearable to me. I experienced the greatest possible pleasure in the study of nature, but more especially in the observation of bees and the investigation of their wonderful economy; and I therefore chose a calling in which it

would be possible for me to follow my inclination. As a priest, I hoped, like Schirach, Christ, and others, to find leisure to continue my observations on bees and to throw light on the confused opinions then prevailing in regard to the economy of bees; and in this hope I was not disappointed. After being ordained on the 16th March, 1834, and having acted as Chaplain in Schalkowitz District of Oppeln till July 1835, I received the offer of an appointment at Karlsmarkt. Although it was but a small living with not much pay attached to it, I accepted the offer, and it never occurred to me to seek a better endowed living, because it suited me entirely.

Of course I arranged a place for bees in the garden of my parsonage. This garden was a pretty large one, though quite in a state of wilderness, and I stocked it with a few colonies in 'Christ Magazine hives' from my father's apiary. These were at that time considered the best bee-hives, and during the Easter holidays I transferred some log-hive colonies into these hives.

The bees did very well in them, especially after I had changed the wooden cover (crown-board) for one made of straw, as I found the former absorbing too much moisture. In order to enable me to turn up this straw cover, and remove it conveniently without damaging the combs, I provided a grate at the top, placing on it as many bars, an inch in width, as the number of combs there was room for in the hive. A hive about ten inches square would therefore take seven bars. I fixed a guide-comb to each of the bars in the hive, as I got a great number of most beautiful combs from my log-hives when trimming them in spring, which I did not like to melt down.

This was the beginning of hives with moveable combs, for when the cover was removed, or only partially rolled up, it was possible to take out a full brood-comb or honey-comb and insert it in another hive. But as it was somewhat difficult to detach the comb from the sides of the hive, I constructed hives which opened at the side, in order to enable me to loosen the combs from the sides of the hive and to take them out with ease. At the commencement I used single hives, partly 'Standers' and partly 'Lagers,' but afterwards I constructed hives to hold two, three, six, or eight colonies, in order to economise material as well as space, for, thanks to the moveability of the combs, the number of colonies increased in a few years from 300 to 400, and I was obliged to be always making new hives and to put up additional apiaries in the neighbouring villages in order to dispose of all the stocks of bees.

As my distant apiaries were in a tolerably good position I obtained such an amount of honey from them in favourable years that I was at a loss to know how to store and dispose of it. My Karlsmarkt apiary, although not in a particularly favourable situation, contained a very large number of stocks, and was chiefly used for observations and experiments; and, after the introduction of the Italian race, for breeding these beautiful, gentle, and industrious bees, and to keep them pure. It was always open to anyone interested in bees and was visited by numerous people, desirous of increasing their knowledge of bee-keeping, more particularly by schoolmasters, especially about thirty years ago when the fame of the new method was spreading farther and farther. Among the visitors were Vogel, Hucke, Fritsch, and others, mostly by desire and at the expense of the government. Von Berlepsch also paid my apiary a visit, but *incognito*.

I did not only communicate my experience and its results to my visitors orally, but felt compelled to make them known to a larger circle, and this I did chiefly by a few articles in the *Frauendorf Journal*, which enjoyed a large circulation at that time. These articles were afterwards collected by a private gentleman, Mr. Bruckisch of Grottkau, who published them in the form of a pamphlet entitled *Pfarrer Dzierzon's Improved method of Bee-keeping*. But as this work was not complete and properly arranged I published a book on bees myself in 1848 entitled *Theory and Practice of the new Bee-master*, to which a supplement was added in 1852. From 1854 to 1856 I published *The Bee-master of Silesia*, a monthly periodical. However, as the invention of the twin-stock hive—in my opinion the most suitable bee-hive—was a considerable step in advance, and as the introduction of the Italian bees had cleared up many points advanced by me, but which were disputed by the followers of the old school, in 1861 I was induced to write a new work on bees, which was published under the title of *Rational Bee-keeping*, the latest and most complete edition of which appeared in 1878.

But I published most of my observations and experiences in the *Bienenzeitung*. This journal was started by Mr. Andreas Schmid, principal of the Training College for schoolmasters at Eichstedt, and was made the organ of German bee-keepers at their first Congress at Arnstadt in 1850, Mr. Beck of Nördlingen being the printer. My new theory, which advances the proposition that the drones originate from unfertilised eggs and that the queen as the mother of all the bees in the hive has the power to determine the sex by preventing the impregnation of the eggs to be deposited in the drone-cells, met with the most violent opposition. Mr. Bruning, an old contributor to the *Bienenzeitung*, said in one of his articles that he was at his wits' end when he read my proposition. My theory, however, has passed the ordeal of science, and its correctness has been proved under the dissecting knife and the microscope by the great physiologists, Professors Dr. Von Siebold and Leuckardt.

Even Baron Von Berlepsch greatly opposed my theory, being, like many others, of opinion, that the eggs which produce drones were laid by distinct bees, the so-called drone-mothers; and he did not acknowledge his error until I had sent him two Italian queens in the autumn of 1853, and not only yellow-workers, but also yellow drones appeared as early as March in the following year.

He declared my whole theory to be a calamity, and prophesied, that as people were now exclaiming 'Hosanna' so they would soon join in the cry of 'Crucify.' I replied that his prophecy might be fulfilled some day,

When the Rhine would flow back towards its source,
When the frost, instead of the sun, would melt the snow.
When the swarming season in our country would commence at Christmas,
Then, but not till then, might his prophecy be realised.

I further replied that my hive, with the exception of the long grate carrying the bars, which could not possibly do any harm, was an imitation of the log-hive which had been in use for a thousand years. Soon afterwards Von Berlepsch confessed himself completely beaten, and convinced of the correctness of my theory, and openly declared he would come over into my camp with bag and baggage; his letters on bees which appeared in the *Bienenzeitung* did much to make my theory and practice of bee-keeping more widely known.

It is evident that my new theory, according to which the drones, or male bees, originate from unfertilised eggs, had found adherents and recognition among men of science, as Dr. Kieser, the President of the Imperial and Royal Leopold Carol. German Academy of Science, forwarded me the diploma of membership of this body. Hardly a year has passed since without my having received a diploma of honour from one or the other learned society. One of the first which I received, and which I value most, is that signed by Archduke John (at one time Regent of the empire) in his capacity as President of the Agricultural Society of Graz. It was no less an honour to me to have had conferred upon me the honorary title of Doctor by the University of Munich.

It was quite beyond my expectations to receive honour

and distinction even from reigning sovereigns, by being decorated with orders. At the Bee-keepers' Congress at Darmstadt, the then reigning Grandduke of Hesse invested me with the order of Ludwig; from the Emperor of Austria I received the order of Francis Joseph: at the Congress at Breslau I was decorated with the Prussian order of the Crown, fourth class; the Emperor of Russia conferred upon me the order of St. Ann, which was handed to me by Councillor Professor Von Butlerow at the meeting in Prague, and a short time after the King of Sweden sent me the order of Wasa.

But lest I should be exalted above measure through the abundance of honours and distinctions conferred upon me, there was given to me, to use the words of St. Paul, a messenger of Satan to buffet me. This Satanic *rôle* towards me was performed by the blindly-believing and blindly-obeying Ultramontane fanaticism. Because I had taken as my guide the words of the Apostle Paul, 'Prove all things; hold fast to that which is good, and let your obedience be in accordance with reason,' and because I would not allow my reason to be surrendered, and myself to be degraded into an automaton, and consequently was unable to subscribe to the new dogmas of the infallibility and universal episcopacy of the Pope, I became the object of the hatred and spirit of persecution of the fanatics. Even the ecclesiastical authorities described me as an apostate, and the Prince Bishop, Dr. Förster, ordered the stoppage of the small pension which after my resignation in 1869 had been regularly paid to me for some time by reason of the payments I had contributed towards the Pension Fund; but, being condemned in all the courts of law, he was compelled to account to me for all arrears with interest to date of payment.

(To be continued.)

Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of September, 1885, amounted to 1516*l.* [From a private return sent by the Principal, Statistical Office, H.M. Customs, to E. H. Bellairs, Wingfield House, near Christchurch].

FLOWERS WITH REGARD TO HONEY.

It is with the object of obtaining the choicest honey that we should, from time to time, consider the sources from which our honey yields are derived in the British Isles. I have, with great interest, read the articles and letters that have appeared in the pages of the *B. B. J.* regarding bee-plants: as to the varieties that would produce the largest quantity of pollen and those that would yield the best harvest of honey. As to the former I would say but little, as provided a particular flower furnishes the bee with large quantities of farina it being only for their exclusive use, cannot matter to the bee-master whether it be white, brown, yellow, or even black; but when we consider the kind of honey produced it becomes a question which requires some careful consideration. We not only wish for large quantities of honey, but also that the quality of the nectar should be good; in many cases the yield from a certain flower may be large, but the quality so very inferior that it would be of far more advantage to have less quantity and of choicer quality.

There are a large number of plants from whose blossoms the bees obtain large harvests of honey, but very inferior, and some, no doubt, injurious. It is not my intention to enumerate these, I simply throw out the hint; so that, prior to cultivating any particular variety of flower, we should ascertain what kind of honey it produces. I have already, on a former occasion, alluded briefly to some of the different kinds of honey.

The Rev. T. Scott has very kindly sent me a sample, gathered in the vicinity of the Kent cherry orchards, the flavour of which resembles the choicest cherries, aroma not unlike the scent from heliotrope, and the colour all that could be desired. Whilst I am indebted to the kindness of Mr. R. P. Kitson for sending me some honey from blackberry blossom, the flavour as of treacle, aroma very like blackberry jam and colour dark chocolate; when eaten, even in a small quantity, it acts as a narcotic, causing drowsiness, and producing symptoms as from slight poisoning. The varieties of honey are so great that it is a subject which requires the closest examination.

It is well known that some people cannot eat honey; producing a rash with some, and affecting others in various ways. I quite believe that this arises in a measure from the kind of honey eaten. We well know that some kinds of honey are actually injurious, and I am strongly of the opinion that other varieties possess virtues which at present we are not aware of. In my short experience I have found that some kinds of honey are most beneficial for sore throats, whilst others would produce no good effect. I am very anxious, *pro bono publico*, to investigate this matter more fully; and, to enable me to do so, would esteem it a kindness if those interested in the subject could send me a sample of the kind of honey peculiar to their respective neighbourhoods, stating the flowers from which, in their opinion, the honey was obtained, and I trust to give the results to the *Journal* later on.—W. N. GRIFFIN, *Freshford, Somerset.*

BLIGH COMPETITION.

Allow me to say that more confidence would be felt in the award of the judges in the above competition if they would be so good as to state, in a supplementary report or otherwise, the principles upon which their awards were based. They admit, I am glad to see, that erroneous values were placed on both honey and bees by those who framed the rules for the competition, but I would suggest that their report would have been more interesting, and more satisfactory, if in the published balance-sheets real values had been substituted for those which are purely imaginary, or if the judges had at least informed us what their scale was upon which their calculations and comparisons were made. I have tried to form some opinion upon this point, but confess to being unable to arrive at any conclusion which will account for the actual decisions. Thus, tried by the scale of prices fixed by those who framed the rules, I find that J. Arnold, with a total expenditure of 2*l.* 2*s.* 1*d.* made a profit of 8*l.* 15*s.* 9*d.*, and W. Seabrook, on an outlay of 2*l.* 5*s.* 11*d.* makes 9*l.* 0*s.* 11*d.* The former is awarded the *sixth* prize, and the latter the *fourth*. Then W. Woodley expends 1*l.* 17*s.* 9*d.*, and gains 14*l.* 14*s.* 7½*d.* T. Owen is placed before him with a profit of 14*l.* 3*s.* 2*d.* on 3*l.* 9*s.* 4*d.* I do not say that the judges may not have had a reason for these decisions, but I do say it would be more satisfactory if we knew what these reasons were. Possibly, in one case, they may have been influenced by the belief that at present prices increase of stocks may be more profitable than the collection of extracted honey, which could not really be sold at 1*s.* 0*d.* per lb. But I need hardly point out that it is grossly unfair to give competitors one set of rules and prices to work by and then to judge them by another. As I endeavoured to point out, eighteen months ago, the rules, not the com-

petitors, are to blame. If the competition has encouraged the least sound and remunerative system of bee-keeping, again I would point out that the figures given in the balance-sheets are not so accurate as to command implicit confidence. At what price, for instance, is 125 lbs. of honey reckoned in order to bring 6*l.* 18*s.* 8¼*d.*—mark the farthing, or 52 lbs. to make 2*l.* 15*s.*?

I observe, too, that Mr. W. Woodley, in his diary, notes that his bees swarmed June 4th, again on the 18th, and that on the 27th they cast out *two queens*. Can Mr. W., or any bee-keeper, explain to me the history of those two queens? Had I been one of the judges, I should certainly have suspected that Mr. Woodley was in error in supposing that the swarm of June 4th came out of hive 1 at all, but rather that that of the 18th was a *first* swarm, the two queens could then have been easily accounted for: but Mr. Woodley's place in the competition might, in that case, have been different.

The results are no doubt as a whole satisfactory, and I have no doubt that all the competitors managed their bees with considerable care and skill, but unless bee-keepers and the public generally have confidence in these trials, their value is *nil*. Perhaps if in future the rules are made a little more consistent with common sense, and the principles by which the judges will be guided are made more fully known, there will not be always so marked an absence of the names of all the leading and most experienced bee-keepers from the list of competitors in these interesting trials.—GEORGE SHIPTON, *Brampton Vicarage, Chesterfield.*

MY REFERENCE BOOK.

While reading the bee-papers, it is generally to be noted that nearly all writers tell us about things which are past; this, put with the time it takes the article to get to the publisher, and the same to be placed in our hands through the mails, together with the printing, makes nearly every valuable article which we read a month or more behind the time most appropriate for its use. I am not finding fault with the correspondents of the bee-papers regarding this state of affairs, for it is quite natural that this should be so. There is no time a person feels more like telling what he has done, and how he did it, than just after doing it successfully. There is a certain inspiration on a person at such times which allows of their story being told better than it could possibly be at any other time after several months have passed away, as must always be the case where the story is kept so that it can appear before the public in its appropriate season. Thus it happens that all of the best articles on wintering have appeared in the spring; the best article on securing a large yield of honey, after the honey harvest is over, and the same is true of nearly every other subject pertaining to bee-culture. Now, our bee-papers are of value to us only in proportion as we remember and put in practice the valuable points they contain; and as my memory is not sufficient to keep track of all that is of value, appearing out of season, I must have some means of reminding me of the valuable points just when they are of use. Again, much of the matter in the bee-papers is of little value to the experienced bee-keeper, except to add a little to the 'spice of life' by adding variety to our reading-matter.

There is only now and then an item or an article we wish to look at the second time, so what we want is some plan by which we can get at that which is really valuable when wanted at another time. To do this I struck on this plan. Whenever I sit down to read a fresh paper, I have a pencil with me, and when I find a new idea, or an old one I wish to further experiment with, I mark it. In some instances the marks will embrace a whole article, while others call attention to only a few lines. In future years, or at any time I wish to find that which is really valuable in my store of bee-literature, all I have do is to read the marked passages, and thus get the cream of a whole year's numbers of *Gleanings*, or other paper, in a little time. Now, the above would be all that would be necessary, were it not for the matter of most articles being out of season, as spoken of at the beginning of this article, but for this reason I want some arrangement which will cite me to all the valuable points so that I can practise each in its appropriate season. After further studying on the matter I decided on what I call a 'Reference Book,' which is simply a small blank book bound in leather. Any memorandum or account-book will answer the purpose, providing it has at least twenty-four leaves in it. This book I arrange similar to an assessor's book, which has the letters of the alphabet from A to Z on the outside margin of the leaves. Cut the leaves just as you would to letter them; but instead of lettering them, write on the little square of the first, 'Jan. 1st;' on the second, 'Jan. 15th;' on the third, 'Feb. 1st,' and so on, giving one leaf, or two pages, for each half-month, to the end of the year. Having the book thus fixed it is kept near the chair which I usually occupy when I read, together with a pencil, so that when I come to any passage, part of an article, or an entire article, that I think will be of any service to me, either as something new that promises to be valuable, or some new plan of using something already familiar to me, I mark it with my pencil, and then jot it down in my book under the date to which it is applicable. Thus I get all the matter which I consider valuable, contained in what I read regarding apiculture, arranged with reference to the time it is to be used, in this book.

When Jan. 1st arrives I look over all there is on this page, and, for instance, try fixing one of my saws so as to make it saw smoothly, as described on page 408 of *Gleanings*, by way of experiment, if I chance to find a note regarding that in this little book. To explain more fully, on page 533 I read how to cut up foundation by using kerosene oil and a butcher-knife, so that thirty or forty sheets can be cut at a time. As I had always used the Carlin wheel, or a stamp-cutter like those used by D. A. Jones, for cutting my foundation starters for sections, I thought this might be better, so the plan was marked. As the first half of May would be the time I would most likely want to use it, I turn to May 1st (by putting my thumb on that date when opening my reference-book) and write *Gleanings*, 1885, page 533, 'How to cut foundation.' When this date (May 1st) arrives I look over all that is written there, and, as I come to this, I turn to page 533, and there is just what I want, at the right time; for in a day or two I must go to work cutting foundation into starters for my sections. So I go to work and cut a part by the new way, and some by the old. If the new proves the more valuable I mark these words on my reference-book with a star; or, if worthless, I draw my pencil across the whole line, thus crossing it off.

If I have made it plain, and I think I have, it will be seen that I have all the real worth of many volumes in this little book, while the matter which was worth only once reading is left out. Different persons would make different selections from what I should: but the plan is a good one, in my opinion, and one which will be of great service to any one who will follow it.—G. M. DOOLITTLE.—(*Gleanings in Bee-Culture.*)

BEE-HOUSES.

In the last two or three numbers of the *B. B. J.* I have read some inquiries made and some answers given on the subject of bee-houses, I have seen the same subject noticed in some numbers a year or two since, but always unfavourably spoken of, and that, too, without giving any, to me, apparent reason. Some two years ago I attended a lecture on bee-keeping, given by Mr. T. Blow,

when I asked him the question, 'Why bee-houses were objected to?' In his reply he said, 'I can see no objection to a bee-house, and that he considered a bee-house, if properly arranged, was the best way of keeping bees, because it was much less expensive for a number of bees than having so many separate hives, and gave as a suitable size 12×12 feet. Would your correspondent in *B. B. J.* for Sept. 15th, kindly give your numerous readers some reason, *i.e.* valid reason, for speaking against bee-houses? I think a bee-house a great advantage especially if in a good district you are cramped for garden room.—C. Truscott, *The Apiary, Shaftesbury.*

AVERAGE WEIGHT OF SECTIONS.

Out of curiosity I weighed some seventy of this year's sections, and it occurred to me that perhaps others might be interested in the result.

Sections ($4\frac{1}{4} \times 4\frac{1}{4} \times 2$):—

3	weighed	less than	16 oz.
11	„	between 16 oz. and	17 oz.
34	„	„ 17 oz. „	18 oz.
22	„	from 18 oz. to	$18\frac{1}{2}$ oz.
70	gave the average weight of		$17\frac{3}{8}$ oz.

—F. Crewe, *Stone, Staffordshire.*

JOTTINGS FOR THE *JOURNAL.*

By W. Crisp.

Strange treatment for bees! I had often promised to visit a bee-keeper, and see his bees, and this spring met this person near his home, and went to see his stock. Judge my surprise to find the entrances all carefully guarded by a piece of toilet-comb, plastered round with lime, so that not a bee could get out. I inquired, 'How long have you had them fastened up like that?' 'All winter,' was the reply. 'Well,' I rejoined, 'mind if they are not all dead.' Opened up the hives, half of what had been fine stocks smothered, a few alive and glad to get out. Opened without leave all his hives, amid blank looks, and ejaculations such as, 'Dang it all! who'd a'thought it?' and I pointed out that if he had been barred up in his bed-room all winter, what a state he would have been in. He at once saw the force of the simile.

I notice various dealers advertising tins for honey. Now, honey that has been stored in *tin* is not fit for food, as the action of the acid contained in the honey on the tin makes it more or less poisonous, and if tinned for long time, highly dangerous. See the poison in tinned fruits, honey is much worse.

From time to time one reads in the pages of the *Journal* remarks from interested persons about the possibility of honey being produced at 3*d.* per lb. What grand harvests those people must have from the sugar-cask!

Introducing queens *à la* Simmins, a few weeks ago, in introducing a Ligurian queen, all unintentionally she escaped. I threw open the hive from which I had taken the black queen a few minutes previously, and near which I was working. In a few minutes the Ligurian was down amongst the combs, but so active that she again took wing, and amongst so many hives I had small faith of her coming again to the right one. However, I left it partially open in hopes, watched for about an hour; some time after that she came and joined the hive and was duly accepted.

Do bees hear? is a moot question amongst bee-keepers. I think they do. Instance the glorious hum during the swarming, and watch how the stragglers concentrate around those who have selected a suitable place. Now, for the proof that it is not sight that guides them. During last season a brass band was playing near to where a swarm rose, and I watched them with considerable interest; and if ever I saw lost bees during the twenty and more years I have had to do with them, it was that swarm. During an interval of the music, a part clustered, and the queen joined them, but as soon as the music commenced again, those bees on the wing became lost and confused, forming several small clusters, many going back to the skep they swarmed from. It was headed by an old queen. Finally, when the music ceased, all the small clusters gathered into one. I may mention that, during the performance, I threw the cluster containing the queen up into the air, but they went back on to the same branch, although another cluster was only a few feet off.

EXPERIENCE WITH SKEPS.

I have been much struck this year with the small size of the cottagers' hives in various parts of the west of Somerset. Frequently in the month of August, when the heather was in full bloom, and within easy flight, I noticed whole rows of stocks apparently at a standstill for want of storing room, bees hanging out or flying listlessly around. Swarming was unnecessarily frequent earlier in the year, one bee-keeper in West Somerset having increased his stocks by natural swarming this year from one to nine in number. It surely must be a waste of honey-weather for an ordinary bee-keeper to devote so much of it to the increase of stocks. I have been also very much impressed by my own experience this year and last with the importance of providing *roomy*, warmly-covered supers for straw skeps. Last year, about the beginning of July, I provided my only skep with the ordinary small straw super sold with the skep. The bees first built one deep comb in the centre of this super and then crammed the space with ever-increasing numbers. They seemed to loiter about listlessly for several days, and, finally, about the end of July, sent off a large swarm, which I lost at the time, but found again after three days. The surplus honey produce of the hive was *nil*. This year, after reflection on last year's experience, I fitted up the same straw skep with a top-board to take an eighteen-section super, and I have had the following result: I have taken off three crates of sections, amounting in all to 43 lbs. of perfectly-sealed and pure delicious honey. The skep itself weighs now about 25 lbs., and is, without feeding, in a splendid state to pass the winter. I have had no swarms. The skep thus treated with crates of sectional supers, and kept thoroughly warm with treble thickness of felt, has run my Abbott ten-frame hive a very close race—the Abbott having yielded 45 lbs. of section honey from the super crates. Ours is not considered a good honey district, but I am very proud of my bees this year.—Fred. Stock, *Burton Bank, Mill Hill, N.W., October 16th.*

BEES DESTROYING THEIR EGGS.

I note the inquiry of Mr. H. P. Jones in your issue of the 15th October, whether bees are in the habit of destroying the eggs laid by the mother bee very late in the season? Such, no doubt, is the case. Their reason (I don't like to write 'instinct' after 'Corrigenda's' letter in the same issue) evidently tells them that the young bees which would be hatched almost into November would be of very little use to the community; also the larvæ would consume stores which perhaps would be wanted during the winter. I am led to these inferences by an instance in my own apiary. One hive so destroyed their eggs, whilst another one I was feeding reared the larvæ, they evidently supposing, on account of the stores coming in, that winter was not quite so close at hand as the first hive, which was not being fed. Bees seem to be, like mortals, rather fond of new-laid eggs, when dropped on the floor-board or improperly

laid, as when two are laid in one cell. I have purposely placed eggs on the floor-board, and have seen them eaten with evident gusto.

In the issue of the 1st October, 'W. J. T.' complains of his foundation stretching when returning swarms. Such would, I am sure, have not been the case if his foundation had been pure bees-wax. There is a lot of foundation on the market with hardly 25 per cent of bees-wax in it; such a lot I got hold of. It was splendid colour and nose; but talk about drone-comb, why, some of my cells were about the same shape as the perforations in excluder-zinc. No more foundation at cheap rates—by taking a quantity for me. I invested in a mill; I knew then I should get it pure. Will 'W. J. T.' try his foundation—if he has any left of the same sort—by the simple means advised by Mr. Otto Helmer in a recent issue of this *Journal*, and advise me of the result, and whom he bought it of? We might then compare notes as to who to avoid in purchasing it.—W. B. Webster, *First Class Expert, Wokingham, Berks.*

THE CARNIOLAN BEE.

It is with great pleasure I see that Mr. Blow is on a visit to Carniola, and we may hope to hear something interesting about the Carniolan bees in their native habitat. For myself I am a great admirer of these bees: there is only one drawback to being an enthusiast, that is, that he is apt to favour his pet bees more than the other kinds: it may be beauty, as in the case of the Ligurians or Cyprians, or it may be docility, as in the Carniolan, or some other valuable quality; but one thing is certain, men have to be enthusiastic in any pursuit to succeed in it, and nothing requires this more so than bee-culture. It is most interesting to note the various distinctive traits of character displayed in the different races of bees. The Carniolan, as Mr. Cowan so aptly describes it, is eminently a ladies' bee, not a toy bee, but one which combines all the good qualities—something of the nature of a Christian bee. It might even belong to the Society of Friends for quietness on the let-me-alone principle, and yet it exhibits all the vigour of the Italian in defence of its hive when attacked by robbers either Apis or Homo, but a puff of smoke shatters its courage to the winds and no more trouble. The Carniolan exhibits some distinctive traits from any other race of bees; first, its appearance, at the first glance one would be inclined to suspect ages back a cross with the Ligurian, for the first ring of the abdomen is more or less distinctly copper-coloured; with this the resemblance ceases. The next peculiarity that claims your notice is the peculiar shade of grey colour and the downy appearance of the young bees as they play on the alighting board; if you examine the interior, the hatching-brood are almost silver-coloured like white moths, and gives one a start of surprise the first time seen; they are most prolific bees and not more given to swarming than any other bee. I had a very large hive of hybrids cross Carniolan with black drone, which were simply splendid bees. The pure race are better workers than any other, but this quality is neutralised by a peculiarity of the bee, that is, they will not face cold windy weather, but stay at home, consequently do not suffer from spring dwindling; nor will they venture out early on cold mornings, in fact they are a sort of take-care-of-myself bee, yet when sunshine does come they work hard and amply make up for lost time.

Last season I sent two hives, pitted against each other (one pure Carniolan, young queen; the other, hybrid Italian, also young queen, both about the same weight, and covering, eighteen frames, about 4000 cubic inches contents) to the heather; when brought away the two hives were about alike—gross weight seventeen stone. Until that time I had fancied that no race of bees could touch Italian hybrids. The next point in their favour s their length of flight. An American friend states that he is nine miles from the bass-wood, yet they bring honey home from it, and certainly my bees went to the heather, and in a bee line about five miles. Many came home, and note, not a single Italian hybrid or black found its way back. This calls to my mind another peculiarity, viz., they do not fraternise well with any other race. This lot that came home from the moors, a good cluster, I added to a hive left at home, and early the next morning I found the same cluster of Carniolan bees under the cover of a hive-top left at home, but not on their old stand. I joined them again, and all day they sat upon the corner of the hive-cover grouped by themselves basking in the sun. I noticed a similar behaviour, when first liberated, in my first lot, which for some days grouped about the hive; the queen was found, too, on various points of the hive-cover. The next point is their method of hybernating during the cold winter months. During last winter my Carniolans were only out twice, and then, why the alighting-board was simply filthy with excrement, but no trace of soiled comb inside; the hybrids behaved in a similar manner, and although I fed this hive all winter, it did not suffer from dysentery, and only twice relieved themselves, until spring came, when they were the first to occupy their supers and threw two first-class swarms, and still did not desert the top box.—W. Crisp, *The Apiary, Castleton, near Grosmont, Yorks.*

COTTAGERS' AND COUNTY SHOWS.

At the outset, allow me to thank Mr. Bellairs for the congenial way in which he has taken my remarks, p. 289, on 'Cottagers and County Shows.' Certainly he may class me as one of his 'friends,' as my notes were penned in a friendly manner, and not in a carping spirit, whatever. I wished to ventilate matters which I consider require readjustment in connexion with cottagers and their exhibiting; and I venture to say that a number of individuals placed under similar circumstances to myself, will say, 'Hear, hear,' to my 'growls,' as he terms them. From the admissions which Mr. Bellairs makes, he must be of the opinion that there was occasion for a 'growl,' by him admitting that cottagers ought not to be confined to one pound-sections; but then, is this the way to encourage the cottagers to support the Society? Mr. Bellairs should give us his reason for altering the size of sections in the cottage classes. Why was this done, and such a short notice given? The first intimation any of us had of that intention being, when we received the schedule not *more* than three weeks before the first show of the County Association, and too late for such of us as had not been working one-pound size, to get any ready for that show. If this was not placing the cottager at a disadvantage, what is? and does that tend to induce him to support any society which makes such radical changes at such short notice? I take it that the Association was mainly formed for the encouragement of bee-keeping amongst cottagers; and why should not the prizes be the same in the classes devoted to them when other conditions, as to size of sections, are the same as in the open classes? (as they ought to be). I fail to see why the Swanmore men should not compete in the classes devoted to cottagers the same as cottagers in other districts; if they are able to beat all in the 'open' classes in addition, that is all the more to their credit, and I do not see that this neighbourhood is any better placed for the production of honey than others.

Because the Swanmore men took nearly all the prizes in the 'open' classes, I cannot see how Mr. Bellairs strengthens his argument by saying that it sounds a little 'greedy,' when I complain as to the value of the cottagers' prizes. Perhaps Mr. Bellairs will explain 'why' they should not be equal in value with the open classes, when other conditions are the same. As to the same weight of honey, &c., I contend that the Association

admittedly being principally for the benefit and encouragement of cottagers, that the prizes ought always to be equal, even if they are *small* ones; or, if *one* has to suffer, it should be the man who can afford to show in 'open' classes, and not the cottager. I have yet to learn what is the use of having rules without their being enforced, as apparently the one regarding the post-entries was not. Now, by such proceedings, what is to prevent anyone from staging their honey on the morning of the show, without being entered, as was done at Romsey, and which exhibit gained first prize in Class VI.? Now post-entries, if allowed at all (and I have not a word to say against them), should have a fixed time for closing, and that time should certainly not be later than the evening before the show.

What I contend is, that if a rule is required at all, it ought to be enforced, or exhibitors will soon find loop-holes, which in the end may turn out unfavourable to some other exhibitors. One great benefit derived from holding shows is the stimulus given to exhibitors to excel each other. This can only be done properly by treating all classes fairly alike. As early notice as possible should be given of all shows, and particularly when any great change is contemplated in altering the sizes of sections.

In conclusion, I will give one fact to illustrate the hardship of the change of sections this year on cottagers. One cottager here sent to the first show of the year (through not understanding the schedule) a crate of six 2-lb. sections, in first-rate condition, both as to finish and colour: the consequence being that he was debarred competing, although his honey was 'far and away' the best which would have been in the class, and I fail to see the justice of one cottager like this being debarred, where another, for instance the one Mr. Bellairs has quoted, being looked over. I may also state that this same honey has taken since that three or four prizes, including both cottage and open classes.—OBSERVER, *Swanmore, Bishop's Waltham, Hants.*

WORKING SUPERS ON SKEPS.

I was pleased to see the report of the Rev. W. E. Burkitt's visit to Street, for which some of us are very thankful. I have been a member of the Bee-keepers' Association for two years, and it is the first time that I have been visited by an expert. Mr. Burkitt said that he was sorry that there was no attempt to work sections on skeps here; last year I took forty of my best sections off straw skeps, this year I have no straw skeps here, but I have worked sections on skeps at Compton Dunden, where there are nearly all skeps. I should like to know what conditions there are to pass for certificate of experts; if Mr. Burkitt or Editor would kindly say, he would be conferring a benefit.—THOS. F. HUISH, *Street, Somerset.*

[The candidates for third-class certificates are examined by word of mouth as to their knowledge of bee-keeping, and are required to show their skill in driving, manipulating, &c. They are not required to give a lecture or to answer questions in writing. They are expected to produce testimonials as to character. Candidates are recommended to study *Modern Bee-keeping*, Cowan's *Guide Book*, Root's *A. B. C.*, and Cook's *Manual*.—ED.]

THE SEASON OF 1885 IN MID-CORNWALL.

I wintered seventeen colonies; united two in April, and began the season with sixteen fairly strong colonies, but shortly found two of my hives without queens. First I sent off for an Italian queen; she arrived in a very weak state on the 24th May, and was put in one of my hives, but soon died. By this time I had hatched four queens in nucleus hives, put one in each of the two queenless hives, and soon found they were doing well: one gave me 82 lbs., the other 86 lbs. of run honey. The sixteen hives which were nearly all 3 feet long, containing twenty frames, yielded an average of almost 107 lbs., or 1707 lbs., on the whole. I worked principally for run honey; sections were put on two hives only, one brought forth sixty-three 1-lb. sections, and 70 lbs. of run honey; the other forty-two sections, and 54 lbs. of run honey, both very good; should do more with sections if I had a sale for them, which I have not. I have had only one swarm for the season from my sixteen hives, and that one moved off without a queen, in consequence of the very hot weather, and my inattention to that hive. I made four nucleus colonies, purchased some young swarms, and made several colonies from driven bees, and now have twenty-eight colonies, which, I hope, are in fairly good condition.—MID-CORNWALL.

RACES OF BEES.

I am in want of a book in which there are descriptions of the varieties of our honey bee: Blacks, Italians, Cyprians, Syrians, Carniolans, &c. Is such published, or where could I get the information? If it is to be found in any of the back volumes of the *Bee Journal* I will gladly pay postage to and fro if any one would kindly let me have the loan of it. Unfortunately I do not possess any of the volumes of the *Bee Journal*, having, till this year, only had a passing 'read' of the current numbers.

And I am also writing to have two or three dead bees of each of the foreign races, and hope some of your readers will be good enough to place them at my disposal: for them, too, I shall be glad to pay postage if required.—H. W. LETT, *Ardmore Glebe, Lurgan.*

[Alley's *Twenty-two Years' Experience in Queen-Rearing* contains an essay on the Races of Bees by Silas M. Locke, of Salem, Mass.; Mr. Frank Benton has published several leaflets on Eastern bees; and in the indices of the *Bee Journal* will be found numerous references to foreign bees. In the present number the subject of Eastern Bees is mentioned, see p. 345.—ED.]

A YEAR'S RESULTS.

About this time last year you inserted in the *B. B. J.* the result of my first year's experience in bee-keeping,—viz., that I started with one bar-frame hive (into which I had put three driven lots the previous September) and one skep, and that I finished the season with three bar-frame hives, having taken ninety-four sections and ninety-two pounds extracted honey. I then put three more lots of driven bees into a new bar-frame hive.

This year, therefore, I started with four bar-frame hives, with the following results:—

Hives.	Swarms.	1-lb. Sections.	Extracted lbs.
1	2	0	16
2	1	6	31¼
3	1	16	27
4	0	100	9½
New hives. 5 (2 swarms united June 13)		7	39¼
6 (1 swarm June 2)		5	34
7 (skep; 2nd swarm from No. 2, June 14)			12

I have thus taken altogether—

1-lb. Sections	134 lbs.
Extracted	169
Total	303

No. 4 I prevented from swarming by giving full bars out of it to new hives, and by putting on forty-two sections at a time.

On September 14th I drove twelve skeps for cottagers in the neighbourhood, and next day transferred them all (or rather, those of them that survived their stay in three

skeps, for I had only that number with me; but a good three parts of them were all right) into a double hive with two entrances, and (at present) a space between the two lots as well as on each side of them, giving them ten frames with honey, two with comb only, and syrup. Having driven my skep back into the hive from which the bees came, in August, I have now eight strong lot, as I supplemented the three weakest with driven bees well packed away for the winter. I reckon I have cleared over 25*l.* in the two years.—SCINTILLÆ.

A CANADIAN HONEY LEAFLET.

SOME REASONS WHY HONEY SHOULD BE EATEN.

Why people should freely eat honey can be put briefly in one sentence, to wit: Because honey is wholesome, palatable, and comparatively cheap food. This fact in itself ought to be sufficient to ensure its general use, and no doubt will when the fact is generally known. Owing mainly, perhaps, to the fact that honey yields such exquisite pleasure to the human palate it is for the most part regarded as a mere luxury, and its valuable qualities as a food and even a medicine are generally overlooked. Now, corn meal porridge is a wholesome and cheap food, but it is not sufficiently palatable to catch many mouths watering for it. There are many excellent articles of diet that are quite neglected simply because they do not commend themselves to our perverted tastes, everybody, however, admitting their wholesomeness. But because honey is so superlatively pleasant to all tastes—both normal and abnormal—the hasty conclusion is forthwith reached that it is merely a luxury to please the palate, having no special value as a regular article of diet. This popular conception is very erroneous, and must be corrected before this rich product of nature can take its proper place on the tables of all classes of people as a common article of diet. True, occasionally a person is found who cannot eat honey. It disagrees with a few, or, as they put it, 'acts almost as poison' to them. But this fact no more proves that honey *per se* is essentially injurious than the fact that potatoes 'act like poison' to some people proves that potatoes are essentially unwholesome. The fault is not in the honey or potatoes, but in the subject himself. In some peculiarity of constitution or abnormal condition of the system may always be found the true cause of the difficulty.

The dietetic elements which honey contains are quite indispensable to first-rate health in this and more northerly climates — indeed to all outside the torrid zone. The carbonaceous, no less than the nitrogenous, elements of food are required by the human system in these zones; and as we go north from the tropic of Cancer, more imperatively required than the latter. Now, as honey furnishes these indispensable, heat-producing elements in greater purity than almost every other article of human diet, it therefore stands at the very head of the carbonaceous ingesta. If the animal heat of the system is produced and maintained by the combustion in the blood of the oxygen of the air taken in by the lungs and certain elements of the food, as the most eminent authorities maintain, then it is absolutely certain that for six or eight months of the year in this climate there is no more wholesome or necessary food than pure honey. True, in our ordinary dietary we can get the necessary heat-forming materials from other sources, but we also get at the same time from these other sources disease-producing impurities—fat pork, for instance, and other oleaginous substances so common on our tables. The conclusion is therefore as plain as it is logical, that during the seasons of autumn, winter, and spring in these latitudes, honey is the very best food of its class which we can get. Let there be less pork, butter, and the dirty unwholesome syrups used in the families of our land, and more honey, and the certain result will be the greatly improved health of the people. Sickness and the common ailments of life will be greatly diminished. Considering the relative wholesomeness, purity, and nutritive properties, pure unextracted honey at 10 to 12½ cts. per pound is much cheaper as a regular article of diet than pork or the average quality of market butter at the same price. In nature's *materia medica* honey has also valuable properties as a curative agent. In pulmonary complaints, common colds, sore throats, and that class of diseases, honey has frequently proved most efficacious. Many instances are recorded of remarkable cures by honey in such cases when other medicaments had utterly failed. That honey possesses restorative and remedial properties of an important character is already well known by the bee-keeping denizens of country places and their neighbours, who frequently call upon them for honey in cases of sore throats, colds, croup, &c.; while the bee-keeper knows well that every druggist in every country town, as well as in the city, lays in a stock every year for medicinal purposes.

We may also lay honey under tribute in the production of one of the most wholesome beverages in existence; to supersede tea and coffee on the family table. We give the formula and process and advise all to try it:

Take three quarts of good, clean wheat bran and bake in the oven till it becomes quite brown. Then add one quart of liquid buckwheat honey and stir thoroughly; put it back in the oven to bake still more, stirring it frequently, until it gets dry, granulated, and very brown—a little scorching will not hurt it. Draw it the same as coffee, and use with milk and honey or milk and sugar to suit taste.

This makes a perfectly wholesome and palatable drink, and the sooner it takes the place of tea in every family the sooner the public health will improve. In the writer's family this wholesome and really palatable beverage has been on his table for years, with the best results; and were a ton of tea and coffee unloaded at the door gratis, we would say, 'No, thank you,' so far as drinking either is concerned. The buckwheat honey is preferable to the clover in making this beverage, for the double reason of its brown colour and more pungent taste.—ALLEN PRINGLE.

EXTRAORDINARY TAKES OF HONEY.—Two extraordinary takes of honey have been made in West Surrey. For the last sixteen or eighteen years a colony of bees has taken possession of a niche between the walls of the Hautboy and Fiddle public-house at Ockham, near Ripley. The outer walls of the building are about three feet in thickness, and the bees made choice of their storehouse at the very top of the building, which is three storeys high. The landlord and landlady, with their daughters, resolved this year upon finding out the exact whereabouts of the colony. A diligent search was made one morning under the roof of the house, and a piece of comb was found immediately below the slates, but in such a position that it could not be reached. Mr. Smith the landlord, then descended to the bedroom, and with chisel and hammer removed a number of bricks from the wall, where the whole stock of bees was found. More than two feet square of the wall had to be removed, when a wonderful sight presented itself. A large mass of comb, about two feet in thickness, filled with honey, was exposed. The bees were fumigated, after which large pieces of honey were cut out, until dish after dish was filled with a total quantity of about 120 lbs. The bricks have not been put into the wall again, but a glass door has been inserted, so that any one interested in bee-culture may have an opportunity of seeing them. Another and still more extraordinary take of honey has been secured at Winter's Hall, Bromley, the seat of Mr. George Barrett. Some men were sent to take some bees which had got between the ceiling of the coachhouse and the granary. They succeeded in taking three hundredweight of honey. The bees had been engaged in their novel hiding-place several years. It was a very interesting sight to see the way in which they had worked.

Echoes from the Hives.

Bishops Waltham, Hants, Oct. 24.—On the whole this has not been an unfavourable month for the bees; they have been able to get out and fly well, and I have seen them carrying in pollen (driven lots) and bee-bread, especially on October 1st, 15th, 16th, 18th, and all seem very strong; it is worth while looking to see the way they kill off wasps which I have seen trying to get into the hives. I would suggest that the present is the best time of all to stop up any cracks which the summer's sun may have caused and to well paint all hives. Weather now rather unsettled and wet.—A Hampshire Bee-keeper.

Honey Cott, Weston, Leamington, 27th October.—Here we are again, at the end of another good season—so good that the question is how to dispose of the honey at a fair price. I have just introduced a couple of Carniolan queens (one of them some time ago) to infuse fresh blood. I have been making entrances smaller to skeps to keep out mice, and, just for a little contrast, putting straw hackles to them. Most other stocks are well provisioned and packed for winter.—John Walton.

Port Mahon, Minorca, Oct. 10th.—Our bees are now quite busy with the ivy, some kinds of which are now very fragrant. Since the September rains we have plenty of wild flowers in the fields, and the air seems full of honey. Pear-trees are white almost as in spring, but I don't see that the bees visit them much. Late white figs now opening with the rains, and ripening on the trees in the hot sun (thermometer 75° in the shade) they are very fond of. Also rosemary which blooms every month, &c. In a week more we shall have saffron flowers. I think the hardest trial for bees here is during our hot, dry summers—some three months without rain. Now we shall have wild flowers till next summer. Our bees fly the year round, though we have some terrible northers in winter, which are hard on them. I have been much troubled lately with the death's-head moth, which the *Bee Journal* speaks of. I have taken away some fifteen or twenty. At first they got into the hives, but the bees did not let them do any mischief. Now the bees have so intrenched themselves with 'casemates and bastions' inside the entrance that the sliding doors are of no account. My hives are so full of propolis—black as Erebus—that I fear the metal ends will not be protection enough, and that they will at last thoroughly fasten the frames. Every time we look them over (once a-week) the blankets are so glued down to the frames that we can hardly tear them off. I tried carbolic acid, and mean to try again. We often go through the entire hive without using smoker—bees quite gentle. Wish you would send us an expert, or pay us a visit.—F. C. Andren.

NOTICES TO CORRESPONDENTS & INQUIRERS.

C. R. S.—We have no knowledge of what the honey obtained from Bartsia is like, but think it very probable that it was the source of the honey stored in the sections. Honey secreted by lousewort (*Pedicularis palustris*) has a medicinal flavour, but not objectionable. The two plants belong to the same natural order (*Scophularineæ*), therefore it is most likely that *Bartsia odontitis* secretes honey of a similar character to lousewort. Blackberry and hard-head (knapweed ?) produce honey of very fair quality, certainly not like that described.

O. Puck.—*Storing Combs.*—Fumigate the frames of comb with sulphur, and tie up each frame, separately, in a sheet of paper, and store in a dry room or closet. Combs thus preserved are kept free from moths, and will be found most useful another season. Allow the pollen to remain. The bees will make use of it, or remove it, as suits their convenience, when given to them.

G. A. R.—*Equalising Colonies.*—Remove the outside frames from the colony requiring food—say two from each side—by gently blowing in a little smoke to drive away the bees, and brushing off any stragglers remaining. Perform exactly the same operation upon the well-provisioned hive, and give two of the frames of sealed honey to the former hive—one upon each side—and close up the division-boards on both sides. Give one frame of comb—taken from the weak stock—to the other colony from which the honey has been removed, and close up the division-boards. Cover both hives with warm winter quilts, and leave them till spring. The operation should be performed at midday on a fine, warm day.

A. H. Blomfield.—1. *Ventilation.*—As we do not know to which of Mr. Neighbour's hives you refer, we are unable to answer your question. If by 'doors' you mean 'entrance'—*i.e.*, the opening by which the bees depart and return—we refer you to 'Useful Hints.' 2. *Syrup.*—If the syrup was made of cane-sugar and boiled, with vinegar added, granulation would not follow, as you represent. Tartaric acid, added to the sugar and water, and boiled, prevents the formation of crystals, and even after the acid has been thoroughly neutralised by chalk or carbonate of lime, no crystals can be obtained. Duncan's granulated sugar is the best for bee-food. The crystallised syrup would not be injurious, but the difficulty is to induce the bees to take it, which, of course, they are unable to do from a bottle. Syrup feeding is next to impossible at this late season and during the extremely low temperature we are experiencing.

R. E. C.—*Cleaning Combs.*—It is better not to disturb bees now by giving them extracted combs to clean. Had October proved a fine mild month instead of almost the coldest on record up to date at least—it might have been done by placing the combs inside the division-board, close to the brood-nest. The present severe cold prevents the bees taking the honey from unsealed combs, except in the brood-nest.

Apis.—*Preserving Queens through Winter.*—It is impossible to keep the queens through the winter, in small boxes, each with a score of attendants. The bees quickly die and the queen perishes. Queens can only be kept in fair-sized colonies. 2.—It is too late by far to raise queens. If it were possible to raise them they could not be fecundated at this late period.

Tudor.—*Candied Cake.*—The sample of candy sent is too hard and crystalline, treat it as advised in reply to 'R. E. Lloyd,' p. 342, current vol.

E. A.—*Combs containing partly sealed Honey.*—Remove the two combs containing most unsealed honey to the back of the dummy, and keep warm. The bees will probably even now seal the remainder of what is unsealed, and perhaps carry in and seal the other. It depends greatly upon the weather, leave the dry sugar feeder as it is. Your second query is the same as asked by 'E. L.,' and replied to on p. 325, current vol., to which please refer.

J. G.—*Treatment of Honey which has fermented.*—Before using fermented honey for food it must be boiled and skimmed. Add while boiling salicylic acid in the proportion recommended by 'T. J. D.,' p. 323.

H. T.—*Choice of Hive.*—We prefer a long hive in which the frames run across, *i.e.*, parallel with its front as being most convenient both for wintering and general management. If your present frames are of different sizes, by all means transfer the combs next year to those of uniform (standard) size.

B. J. W.—1. *Hive-making.*—The plan you propose may answer, but we advise you to procure a 'prize hive' from a good maker as a pattern to work from. If you wish for hives to be worked on the doubling system, the upper and lower boxes should correspond exactly in shape and size so as to be interchangeable. Ordinary frames and section-frames may be used in the same box or hive. We do not use excluder-zinc, as we find in practice that when sufficient breeding space is allowed in the lower box the queen *very rarely* ascends to the upper ones. Fourteen standard frames would be sufficient guarantee against this. 2. We prefer the thin flat-bottomed wired foundation—Van Deusen's, we believe—by which the combs are much strengthened for extracting.

S. Harding.—*Removing Bees by Rail.*—The plan you propose of placing your hives in a cellar for a time previous to their removal by rail, will no doubt succeed if the cellar is darkened and ventilated. The bees must not be confined to their hives, but their usual entrances must be left open. Remove them to the cellar late in the evening. After the railway journey, place your hives in the open air, so that the bees may fly after the excitement of travelling. After a day or two, when all are quiet, they may be again placed in a cellar until your house is ready to receive them. Ventilate freely on the journey.

A. P. Howes.—*Removing Hive.*—You may safely move your bees a distance of thirty or forty yards at this time of year without fear of loss. Do it on the evening of a dull, cold day, and place a board in front of the hive after removal to cause the bees to mark the spot when the first fine day entices them to fly.

D. W. D.—1. *Chief Features of Country for an Apiary.*—The three principal sources of honey are the fruit-blossom, the clover, and the heather. The first comes in so early that it is only the best managed hives which are strong enough to gather it, and the weather is often unpropitious. In localities devoted to fruit-growing there is hardly any other source of honey. The second, the clover, is generally the most productive, and the weather generally favourable for its collection. The heather, although giving large results in the north, is not found to be very profitable in the south. On the whole, pasture land, from its bearing considerable amounts of clover, is the best and most reliable feature to be looked for. 2. *Bee Flora.*—No special manual on bee flora has been published, but a reference to the indices of previous volumes of the *Journal* will show how large a portion of it has been devoted to honey and pollen-yielding flowers.

O. W.—*Suspected Dysentery.*—What you take for dysentery is most probably the natural cleansing of the bees after the confinement and excitement of the journey. Do not open the hole at the top of the skep. To create a thorough draught through the hive is the way to set up dysentery, by causing undue consumption of food. Keep the skep dry, and leave well alone. The small entrance has been large enough as yet, and will certainly be large enough now.

H. C. M.—*Small Harvest of Honey.*—From your letter it appears that in March, when you examined your hives, and found plenty of stores, you forgot that bees regulated their proceedings not so much according to their possessions, but to their income. Had you fed them slowly with thin syrup, you could have built up large populations ready to gather the honey when it came. Possibly you were too fond of examining your pets, and so you got a better result from the straw-hives, which you could not interfere with, than from your bar-frames. You had better now remove the combs not covered by the bees, close up the dividers, and put a box with canvas bottom filled with cork-dust or chaff upon the frames. If you fear not to leave sufficient food, give a dry sugar feeder at the back of the frames, or a cake of candy on them. At the beginning of March, commence to feed gently with thin syrup, or keep the dry sugar feeder going. Do not open the hives at any time unless you really must know their condition.

Shoeburyness.—*Condemned Bees building very thick Combs.*—It is very often the case that condemned bees when hived on foundation and liberally fed build one or two combs out thick; sometimes they are so heavily stored as to break down. They should have been frequently examined and the thick combs pared down and placed against the hive side or division board, so that they might be sealed of the proper thickness. It is too late now to interfere with them. Next season they can be treated so as to become straight.

Bee in his Bonnet.—1. *Making Observatory Hive.*—We do not think you will be pleased with your proposed plan when carried out. Mr. Abbott exhibits an observatory hive in which the combs are in their natural position, not separated by glass, but can be separated and brought against the glass sides of the hive for examination. You will at once see the principle by looking at the illustration in Abbott Brothers' catalogue. It would occupy too much space to describe it in detail. Messrs. Neighbour have also a very good one in which any comb can be raised into a glass sided box for examination. 2. *Candy.*—The sample you send is correctly made, but it would be better to use refined sugar. 3. *Moving Bees short distances in June.*—When swarming, either naturally or artificially, takes place you may readily move the bees by placing the swarm upon the old stand until the evening for the flying bees to join, removing the stock to its new position; at night move the swarm to its new position. See page 53 of current volume.

THOMAS B. BLOW

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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

[No. 182. VOL. XIII.] NOVEMBER 15, 1885. [PUBLISHED FORTNIGHTLY.]

Editorial, Notices, &c.

TIN IN HONEY AND OTHER ARTICLES OF FOOD.

BY OTTO HEHNER.

In the *Bee Journal* of November 1st Mr. W. Crisp warns against the employment of tin canisters for the storing of honey, and states that 'honey that has been stored in *tin* is not fit for food, as the action of the acid contained in the honey on the tin makes it more or less poisonous, and, if tinned for a long time, highly dangerous. See the poison in tinned fruits!—honey is much worse.'

As I believe I was the first to make an extended series of observations on the action of food matters on tin, and physiological experiments as to the effect of the metal on the animal body (published in the *Analyst*, 1880), a few remarks on the subject may not be unwelcome to the readers of the *Journal*.

I examined the following articles, obtained at random at various shops: French and American asparagus, peas, tomatos, peaches (3 brands), pine-apple (2), cherries (2), marmalade, corned beef (5), ox-cheek, ox-tongue (3), collared head, tripe, oysters, sardines, salmon (2), lobster, shrimps, curried fowl (2), boiled rabbit, boiled mutton, roast chicken, roast turkey, ox-cheek soup, gravy soup, sausages, condensed milk (3).

With the exception of the sausages, the whole of these samples contained more or less tin. The amount in the vegetable products was, in some cases, exceedingly large, the tins being positively corroded: in the animal products the tin was present only in very small amounts, or traces even.

After reading Mr. Crisp's answer, I obtained from Mr. Huckle two samples of honey that had been in contact with tin for several months. They showed no deterioration as to quality as far as taste and aroma were concerned. On analysis they were found to be practically free from tin, the slightest possible traces only being detectable.

And here I may say that owing to the exceedingly slight acidity of pure honey—much slighter than is generally supposed—not any notable action of honey upon tin was to be expected. The action is proportional to the acidity: hence, pine-apple, tomatos, peaches, &c., corrode the metal strongly: animal substances but to an insignificant extent: and honey may in this respect safely be classed with animal matters. Mr. W. Crisp's warning notwithstanding, I can see not any more objection to the storing of honey in tins than in the case of sardines or shrimps.

I am no advocate for the use of tin for any food matter whatever, and strongly object to it for the storing of fruits or other acid vegetables, and I would welcome any new process of keeping preserved provisions in a non-metallic vessel; but no adequate or convenient substitute has as yet been devised. Glass or china are breakable and bulky, though otherwise perfect. But I do deprecate any alarm being raised and a prejudice being created without necessity.

Tin is not innocuous; in some forms it is positively poisonous, but considering the enormous consumption of canned goods, especially in America, cases of illness arising from their use are very rare, and then may generally be traced, not to the injurious effect of the tin itself, but to the presence in the tin of lead or of soldering fluid, or to the fact that diseased and poisonous animals cannot always be excluded from the millions that are preserved in canisters.

I would say, therefore, by all means use tins for the storing of honey. The method is not perfect. Mr. Crisp should devise a better one: a fortune would surely await him.

HONEY AS FOOD.

The serious fall in the price of honey during the last few years, and more especially perhaps during the present year, has naturally caused dismay amongst bee-keepers, and we have received many letters on the subject, advocating various remedies, to maintain former prices. We maintain that any of these will of necessity fail, unless founded on true commercial principles, and the less the State interferes the better for the producer as well as the consumer. Whether it is known by the name of Protection, Fair Trade, Reciprocity, Countervailing Duties, &c., 'the trail of the serpent is over them still,' and the true remedy is to do all in our power to increase the consumption of honey by proving to the public the great advantages of honey as food.

Our readers will remember that in the *Bee Journal* of April 15 there was a translation of Herr

Dennler's pamphlet on 'Honey as Food and Medicine,' and we would refer our readers to the excellent recipes it contains. We understand that a later edition of this pamphlet has been published, and is to be translated into English for the benefit of our bee-keepers. The B. B. K. A. also are preparing a pamphlet on the subject, which will be of great use for gratuitous distribution at honey shows and fairs, and will be supplied to the local secretaries at less than cost price.

It is by these means that we shall be able to advantage bee-keepers by constantly bringing before the public the great value of honey as food, and the more honey we can sell the less relative profit we shall require. For instance, if a tradesman only turns over a small amount every year, his profits will have to be much larger than if he turned over twice the amount. And it is partly for this reason that a chemist's prices are so high compared to the actual value of the drugs he supplies.

So in the same way, if we can greatly increase the consumption of honey by proving to the public its great value as food, and more especially for growing girls and boys, even if the price of honey falls lower than it is at present, the bee-keeper will be the gainer by the increased demand. Fortunately honey is relished by the young, and though we 'children of a larger growth' have not the same liking for sweet things as in our younger days, we are confident that if honey entered more generally into our diet, it would be of great advantage to us all. For honey is one of the most easily assimilated of all foods, and like all sugars, is very fattening, and as a consequence extremely useful for its heat-producing qualities. The human body is a kind of steam-engine, which requires fuel of some kind or other, and of the necessary fuels for the human frame hardly any occupies a higher place than honey.

To every general law there are exceptions. Some people cannot eat honey, as it acts like a poison just in the same way that eggs, or milk, or cheese, &c., do not agree with certain individuals; but we who are more favoured can enjoy the food of the Ancients—butter and honey.

USEFUL HINTS.

November, thus far, has fully maintained its character as a cheerless month of fog. Nights have been frosty, and a large quantity of rain is reported from all parts. Several bright days, however, have occurred—notably Friday, the 6th, on which the sun shone forth brilliantly, and enabled us to complete sundry operations which had been delayed from stress of weather. We drove from a skep a small colony, with fine young Italian queen, which we caged in a strong queenless stock, separated the frames, and shook in the driven bees, closed up and smoked slightly. Towards evening we opened the hive and released the queen, which was joyfully accepted. There was no fighting, and, indeed, scarcely a bee perished throughout the entire operation, and the colony is now as strong and well-provisioned as any in our apiary. Small colonies—after-swarms—are often of great service when utilised in this and similar ways, and we do not like to pass a winter without a considerable number of them in stock. With judicious feeding, and protection for warmth, there is little difficulty in successfully carrying these small colonies through the winter months, and their value at spring is great. On this splendid day we also managed to complete our winter packing, by removing outside frames, closing up division-boards, and giving extra quilts, &c., all of which ought to have been done long ago, but which, from imperative demands upon our time, had been neglected.

Removal of Covers, on fine days, is advantageous for several reasons, *e.g.*, circulation of air—dryness—clearing away of spiders' eggs and webs—destroying earwigs—and, by direct contact of sun's rays, causing the bees to take an airing conducive to health. Don't *forget*, however, to replace them in case of a shower, and towards evening, otherwise it *might* have been 'better to leave well alone.'

Dysentery.—In our experience nothing tends more to ward off this scourge, and to keep the bees in perfect health during the winter months—this disease is always contracted in winter—than a dry, sheltered situation, with a southerly aspect. A thoroughly dry interior of the hive is a *sine quâ non*, and this can only be attained by perfect ventilation—gentle, insensible, upward ventilation, through porous material over the frames, and, in our opinion, by means of wider entrances than are generally allowed. We have never known a fairly populous colony to perish from cold—*dry cold*—during our coldest winters, but internal dampness soon kills. Air is necessary to bee-life, and a narrow door-way, especially where pervious quilts are not used, interferes very much with its entrance, and hinders the outflow of vitiated air from the hives, for it must be borne in mind that the bees are unable now to ventilate by fanning of the wings, as they do to perfection in the summer. Dysentery, formerly, was supposed to have the same origin as foul brood; and although the late discovery of the bacillus theory has disproved this idea, nevertheless it must be allowed that a dysenteric hive is a far better seed-bed for the propagation of bacilli than a dry, healthy, and well-ventilated one. Sealed stores of well-ripened honey are also a necessity in the perfect wintering of bees. Unsealed stores, fermentation of honey, or syrup, particularly when mixed with pollen, are a most fertile source of disease.

Direct Upward Ventilation of hives—as by holes or crevices at the top—must on no account be permitted; otherwise the vapours will condense, the combs will be covered with moisture, soon to change into mouldiness, the bees will be obliged to consume large quantities of food in the endeavour to keep up the heat of the hive and their bodies; and, if unable to fly and exude their faeces, will die in the hive, and, bursting from the fermentation of food in their bodies, will render the entire atmosphere of

their domicile fetid, foul, and disgusting in the extreme. When such a stage has been reached in midwinter, there is no cure. How necessary, then, by timely precautions, to guard against so terrible a scourge. Closing of division-boards, thus confining the bees to a small space in which they can cover the combs, and shutting off the unoccupied colder parts of the hive, conduces towards a smaller consumption of food, and successful healthy wintering. Hence, these latter remarks apply with tenfold force to *small colonies*. For winter condition, then, let our motto be, *ample ventilation with as little escape of heat as possible either from sides or top of hive*. When using a flower-pot over the central hole let it be filled with hay, or other dry material, which must be changed when damp.

Consumption of Stores.—At present the drain upon stores has been moderate, caused, no doubt, by the weather being sufficiently cold to put a stop to all breeding, but not so much so as to cause the bees to feed largely in defence against severe and protracted cold. Where bees are short of stores, clean dry combs, of sealed honey, inserted outside the brood-nest, are of untold value. No injury will result from doing this, with as little disturbance as possible, on a fine, warm day.

Reversible Frames.—As many apiarists are at this time engaged in hive-building, the subject of reversible frames becomes interesting. That a kind of mania for these has seized large numbers of enthusiastic bee-keepers, especially in the United States, is a fact which cannot be gainsaid. To ourselves it has always appeared so contrary to nature and common sense, that at present we have given it no trial. The subject was mooted in this country four years ago, when our present Editor, Mr. Cowan, in the discussion on a paper by the Rev. G. Raynor, on 'Bee-houses and Hives,' read on January 18, 1882, thus remarked, 'During last year he had seen that the Americans had tried the plan of inverting the frames so as to place the top of the frame containing the honey to the bottom, and the brood to the top. He did not know if there was much in this; but if there was, a rectangular frame would be much more easily adapted to this purpose than a tapered one. He had tried two frames, and, certainly, from these two frames, when inverted, the bees carried all the honey from the bottom into the supers, as the top was filled with brood, and brood was raised in the bottom part.' Added to this testimony, that of Mr. Garratt, during the present season, who, by inverting a skep, induced the bees to carry up the honey to the super above, goes to show that in working for comb-honey the system may prove advantageous.

Our contention has always been, however, that the extra labour caused to the bees, by cutting down the cells and rebuilding them with upward inclination, during a copious influx of honey from the fields, and from the general disarrangement of the combs of the hive, breeding, &c., would not be compensated by the increased gain which in some cases has been claimed in the shape of honey for this system.

Bearing these facts in mind, we have carefully watched the reports in the various American journals respecting the results of inverted frames, and herewith quote, from the last number of the *American Apiculturist*, the following answers by the most prominent apiarists in the States, to the question, 'Are practical honey-producers generally using reversible frames?' Answers:—

(1.) 'I have made inquiries sufficient to enable me to answer fully, and my impression is that they are not. For myself, I can only say, that I have not found them so particularly advantageous as at first I thought they would prove. This is one of those matters that sound big in theory, but turn out rather right in practice.'—*J. E. Pond, Jun.*

(2.) 'I think not.'—*E. E. Hasty.*

(3.) 'Not yet: the frame is new, and new things, even when good, come into use slowly. It is a good thing, and must grow rapidly in favour.—*Professor J. A. Cook.*

(4.) 'We guess not.'—*H. Alley*, author of *Twenty-two Years' Experience in Queen Rearing.*

(5.) 'No.'—*L. C. Root*, Mohawk, N. Y.

(6.) 'No, sir, not "generally" so, by a *great deal.*—*G. W. Demaree.*

From these answers, therefore, it would appear out of six skilled apiarists five give a verdict against the reversible frame—or, at least, against its having come into general use during the five or six years it has been on trial—whilst one only—Professor Cook—speaks in its favour.

It would be interesting, sir, if you could procure a similar consensus of opinion from those English apiarists who have tried the system, for publication in your columns for our enlightenment during this dull season.

Brain of the Worker-Bee.—The size of the brain is a gauge of intelligence. In the worker-bee the brain is $\frac{1}{174}$th of the whole body: in the red ant, $\frac{1}{200}$th: the *Melalontha*, $\frac{1}{3500}$th: the *Dytiscus* beetle, $\frac{1}{4400}$th. As we proceed I shall have to show that the queen is not superior to, but greatly the inferior of, the worker; and the brain bears evidence to this position, as that of the queen is relatively small, as is also that of the drone. The amazons, who support the political fabric of the bee-hive, supply its food, bring up its young, furnish its architecture, defend its property, administer justice, and determine the how, when, and where of new colonies, require greater endowments than the males and true female, who is largely aborted, so as to be almost exclusively limited to the faculty of reproduction.—Cheshire's *Bees and Bee-Keeping.*

Indian Bees.—Mr. Herklots, a coffee-planter on the Neilgherry Hills, South India, writes as follows:—'About Sept. 24th last I went out with a friend to visit some property some three miles distant. We went to a steep hill-side to lay out a trace for a new road. While the men were cutting the track, or, rather, clearing the brushes away, my friend and I were looking about to see which would be the best line for the road. I took up the staff, and went with it to a small rock, when the overseer, who was by, said, "Sir, there are bees about." I did not perceive the force of this statement at once: but, to my surprise, I found the coolies gliding away with great caution and unusual rapidity, and leaving me. The bees, which were of a large variety (*Apis indica*) were now flying angrily about me,

and occasionally coming straight at my face. I had let go the tracing staff, and held only a small riding-cane. With this I was soon actively engaged in hitting at the bees. I probably knocked down three or more of them with my cane. This must have enraged them; and I was soon made to feel the effects of their venom. They settled on the back of my hands and wrists, and all over my face, in every case piercing me with their stings. Wild with pain, I rushed to a bush, crept under it, and covered my face with my hands, coat-collar, and hat as much as possible, endeavouring to remain motionless. I could not endure this more than four or five minutes; so I got up, and climbed the hill-side, at the top of which were a plateau and a road. This was a very steep climb of at least 150 ft., through boulders and jungle, with precipices; so that I had to struggle on through a regular maze, having again and again to retrace my way. All the time the bees were at me. I was soon so much exhausted that I could only move a few yards (eight or ten) without having to stop for breath. I had to use my hands as well as my feet in making the ascent. Whenever I stopped the bees settled upon and stung me more than when I was moving on; my face was covered with them. I had the sensation that they were crawling on my face over each other's backs, as if they were fully two and three deep in number. They made the most persistent efforts to sting me in my eyes—that is, to force their stings between my fast closed eyelids; but they stung my lips most, and several went up my nostrils, and more than once I had to eject them from the latter place by a forcible expiration, closing one nostril with a finger. All this time my sufferings were severe, and it was with the greatest difficulty I managed to reach the road on the plateau. When there I had a plain path all the way down the hill, to where my pony was, quite half, or, I should say, three-quarters of a mile. I was then able to protect my hands by placing them in my breeches' pockets. From the time of commencing to ascend the hill I had not retaliated on the bees, but, judging it the best policy, had allowed them their way with me. Soon after I reached the plateau, as far as I can say about half an hour after I had commenced to be stung, I felt very ill. I had sudden slight indications of rigours, and felt very sick. But I had to struggle on, and to get home somehow. I reached my pony, which is a spirited animal, and mounted him at once. The bees, though in less number, were still at me; and I imagined they would attack my pony, but they did not. I took the shortest route home, a very bad cross-country track. The bees followed me some distance, and gradually left me: a few came almost to the house with me. Soon after I was in my saddle I was vomiting very severely, though I did not bring up much, and this was followed by severe purging of the bowels, the faeces being quite green. I felt very ill, and had to hold on by the pommel of my saddle. I was retching all the way home, and had two actions of the bowels. When I was able to open my eyes I could see that my face was covered with stubble, which I knew were the stings of the bees; I took care not to touch them. On reaching home I went to my own room, and threw myself on the bed. The doctor was then sent for. I continued to be very sick, and was constantly purged. The stings were extracted by my wife and others, and for several days subsequently the doctor found and extracted others. My wife tells me she thinks there must have been quite 300 stings taken out. Food was most abhorrent to me, and for some nights I could not sleep; but within a week I was up again, though very weak. I have felt the results of this adventure in weakened health for months since, and have lately taken a short sea-trip to Calcutta for a change, since which I have somewhat improved in health. The medical treatment consisted of the removal of the stings, and the external application of the following:—Castor oil one part, steel drops one part, collodion six parts; with the internal administration of full doses of steel drops (the affected parts presented an erysipelatous blush), minim doses of ipecacuanha wine to relieve vomiting, solution of morphia to relieve pain and to induce sleep. When the morphia had the former effect only, full doses of bromide of potassium and hydrate of chloral acted as efficient hypnotics.'—*The Lancet*.

The Production of Wax.—A correspondent of the *New England Farmer* writes as follows on this subject:—'Before the habits of bees had been studied, it was supposed that wax was collected from flowers, but later investigation shows that wax is a natural secretion of the bee. It exudes from the body, between the rings, in minute scales. This the bee takes in its 'hands,' works it like a piece of dough, and places it where it is needed. If comb-building is in process, it deposits the piece of wax on the edge of a partly built cell; another bee then attacks it, gives it a twist or a pinch, and smooths it with its mandibles. Sometimes three or four bees will find something to do with that particular crumb of wax. The workers are so many, and work with such rapidity, and do individually apparently so little, that the eye hardly perceives, in a short interval of time, that the structure, the comb, increases in size; but close the hive and examine the same cell in an hour, and its greater length is seen at once. Evidently wax is present when it is wanted, and absent when there is no use for it. This may not be the case, but appearances favour it. If there be no more room in a hive for comb, no wax, or very little is needed; but if an empty frame be placed in this hive, the bees begin at once to fill it with comb.'

California Honey Crop.—'Reports from all quarters of Southern California agree that while the bees are in good condition, they have not stored much, if any, surplus honey, and in some localities they have actually reduced their stores very materially. The cool nights and windy days of the past month have not been favourable to the development of honey-producing flowers or the secretion of nectar. Both sorts of the sages are in bloom, but they afford little honey as yet, and what is stored is not in any respect equal to the honey obtained in the same sections last year at this date. The low price of honey quoted in all the markets is not encouraging, but the value of other commodities is about on a par with honey. Sugar competes somewhat with honey, and the price of that article points still downwards in the principal marts of the world, and it is not reasonable to suppose that honey will advance in price very materially until sugar regains its lost ground to some considerable extent, not only in the United States, but in European countries, where a very large quantity of our last year's crop of honey found customers, who paid better prices for our produce than could be obtained at home, or on the east of the mountains.'

Bee Law in Germany.—'Some years ago we had a bee lawsuit in Germany. There were two landlords, brothers, in our province of Prussia, who had a sheep-pasture that was covered with *Erica vulgaris*, or common heath. The bee-keepers of the surrounding country would take their bees (many hundreds of colonies) to this place, in a neighbouring wood, from which they could reach the heath. The landlords would not endure this, claiming that the bees drove the sheep from their feeding-place. In order to stop it, the landlords ordered one of their servants to make some wooden boxes, and besmear them on the inside with honey; as soon as thousands of the bees filled the boxes, he killed the bees with sulphur. In a short time all the bees were dead. The bee-keepers then made the landlords defendants in a suit, the result of which was that the landlords had to pay all the damages and the cost of the suit—about $1500.'—C. J. H. Gravenhorst, *Glowen, Prussia, August 5*.

ASSOCIATIONS.

LINCOLNSHIRE HONEY FAIRS.

These honey fairs, held under the anspices of the Lincolnshire Bee-keepers' Association, closed with the Grantham Fair on Saturday, October 31, and, upon the whole, have proved fairly satisfactory. The fairs at Boston and Louth being to some extent new ones, it was not expected they would be so successful as the Grantham Fair, which has been so long established, and which, notwithstanding such an unfavourable day as Saturday, was well patronised, large sales and good prices being effected. The total weight of honey on sale was 2 tons 1 cwt. 3 qrs.: the largest consignments being from Mr. J. H. Brown, Swineshead (1406 lbs.), Mr. J. R. Truss, Bainton Heath (804 lbs.), Mr. Walton (166 lbs.), Rev. R. Hollis, Whaplode (220 lbs.), Miss J. M. Deedes, Heydour (120 lbs.), Mr. Rippon, Sudbrook (165 lbs.), Mrs. White, Caythorpe (165 lbs.), Mr. Nix, Aisby (100 lbs.) Rev. C. P. Plumptre, Claypole (146 lbs.), and Rev. M. A. Thomson, Thistleton (170 lbs.). Only one entry of heather honey was pitched, and that by Mr. Henry Yates, of Grantham, and, being so rare, it commanded a high price. The more clear lots of honey, in one-pound jars, sold readily at from ninepence and a shilling, whilst lots in bulk were slow of sale, at from sixpence to eightpence per pound. There was but a limited supply of wax, and it was soon cleared, prices ruling at from one and ninepence to two shillings per lb. The show of honey in the comb was not so large as at former fairs, and moderate sales were effected at from one shilling to fifteenpence for good one-pound sections, whilst inferior sections could only find buyers at ninepence and tenpence. We noticed that the larger portion of honey pitched was more or less in a crystallised condition, and appeared not to be so much in favour; whilst that in a liquid state had a great sale. We would here remark that honey, although in crystallised state, should not be looked upon as inferior in quality to that in a liquid form, but, the contrary, if sound and dry, and wanted to keep. At some of the principal shows in England the highest honours have been awarded to crystallised honey. The British Bee-keepers' Association offered three silver and three bronze medals, one to be competed for at each of the three fairs. At the Boston Fair, Mr. J. Walton was awarded the silver medal, and the Rev. M. Thomson the bronze one. At Louth, Mr. H. A. Smith secured the silver medal and Mr. G. R. Truss the bronze decoration, and at the Grantham Fair the silver medal was awarded to the Rev. C. P. Plumptre and the bronze medal to Miss Kemp. At the Grantham Fair, the judges for the medals were Mr. John Bolton, Mr. J. R. Truss, and Dr. Eaton. The staging and arrangements at the Grantham Fair were under the direction of Mr. John Bolton, at the Boston Fair Dr. Small, and at Louth Mr. H. O. Smith, whose labours must have been great, seeing that all was so well carried out. Great credit is due to them for their voluntary work in doing their utmost for the benefit of members, and to the Hon. Secretary of the Association (Mr. R. R. Godfrey) for organizing the fairs.

LINCOLNSHIRE AGRICULTURAL SOCIETY.—GRIMSBY EXHIBITION.

REPORT OF THE JUDGES.

We have much satisfaction in reporting to the Council of the Lincolnshire Agricultural Society the marked interest in the bee department of the Society's Show at Grimsby. We consider the arrangements were all that could be desired, hence the success which undoubtedly followed. We would specially note the well filled classes of bees in Observatory hives; such classes are always interesting and instructive, affording as they do the opportunity to any one versed in the science of bee-keeping of explaining to visitors the marvellous workings of the honey bee.

Honey Classes.—Classes 3 and 4 were not well filled, and we suggest for the consideration of the Council the desirability of discontinuing them unless under special rules. Classes 5, 6, and 7, brought together a grand display; the quality of honey was unusually fine, and the saleable way in which it was put up and staged was most satisfactory in every respect.

Hive Classes 8 to 13, which were very extensively filled (exhibiting the keenest competition), combined all that modern service in bee-culture could desire; whilst in the class for Extractors no less than eight machines were in competition and some of great merit.

The Manipulating Tent as usual drew thronged audiences, and the practical demonstrations given could not fail to produce good in furthering the object of bee-keeping.

Your Secretary's labours must have been great indeed in this department of your exhibition to have brought about such a successful show.—Henry Yates, *Grantham;* Wm. Carr, *Newton Heath, Manchester.*

STAFFORDSHIRE BEE-KEEPERS' ASSOCIATION.

The Annual Show of the above Association was held at Tamworth on August 25th and 26th. Bee-keeping is making good progress in Staffordshire, as was exemplified on this occasion by the very excellent show both of comb and section honey, said by the Judge, the Rev. J. Lingen Seager, to have been the best he had seen this season.

There were no less than twenty-one entries of comb honey in sections, and the first prize was taken by Thomas Leese, Aston, Stone, who informed us that he had taken fifty-eight sections from one hive this season. At the ballot, some months ago, by members of the County Association, Leese won a hive, which he has already made good use of. He placed a swarm in it on June 4, and it progressed so rapidly that he has already taken twenty-one well-filled sections from it, and extracted honey from five frames, while there are eighteen sections still remaining. For run honey in glass jars, Elihu Clowes, of Black Brook, won first prize with an exceedingly good sample. For the best exhibition of honey in any form, H. Wood, of Lichfield, was well to the fore with 250 lbs. in all, 130 lbs. extracted in bottles, and 120 lbs. in sections, the latter enclosed in neat cardboard boxes with glass lids. This was a most creditable exhibit. In the similar class, but for honey made by bees belonging to an artisan or agricultural labourer, John Handley, Fazeley, was first with good samples in supers, sections, and jars. The prizes in this class were given by Mr. A. H. Heath, the energetic honorary secretary of the local Association. For beeswax, of which there were many good samples, F. Harper, Uttoxeter, was the best coloured, and took first prize.

We next come to the bee-keeping appliances, which are now legion: in fact, at the present time the bees have so many aids that we may safely say that their productive capacities are doubled. Chief among these is the wax comb-foundation, which saves the bees an immense amount of trouble in the construction of their combs. The collections of hives and bee furniture shown by three leading makers were an interesting feature. The first prize for the best collection was awarded to Mr. S. J. Baldwin, Bromley, Kent. Amongst the many useful hives and appliances shown in this collection we may mention the moveable comb straw skep, fitted with bar-frames, with wooden super. Abbott Brothers, Southall, London, obtained the second prize. The third prize collection was that of Mr. Rollins, of Stourbridge, the expert

of the Staffordshire Association, and was, like the others, a creditable one, containing some serviceable-looking hives and many useful appliances. The prizes offered for the best and most complete bar-frame hive, with necessary appliances for winter and summer use and for supering, the price not to exceed 15s., did not bring out anything specially new. The first prize was awarded to Mr. Baldwin for a hive he has named the 'Bridgwater,' where it took a silver medal. It seemed well put together, and made of good seasoned wood. Messrs. Abbott Brothers were second with their 'Capyable' hive, containing space for sections at back, which is a very important feature if any quantity of honey is to be gathered. This hive no doubt is a serviceable one, though not so neat-looking as the first prize one. The third award went to Mr. E. G. Parker, Altrincham, for a hive very similar to Mr. Baldwin's, but all fixed together—stand, hive, and roof. Mr. Baldwin took the first prize for cheapest, neatest, and best super with one he calls the 'Telescopic,' from its being able to be contracted to any size on the removal of full sections. Messrs. Abbott's, the 'Economic,' was second.

For stocks of bees exhibited in straw skeps, J. R. Critchlow secured first honours, Elihu Clowes being second, and H. Wood third. These bees were used for manipulation during the show by Mr. Baldwin, the expert-in-chief of the British Bee-keepers' Association, who lectured at intervals during each day. The two prizes for English or Ligurian bees exhibited in observatory hives were taken by Mr. Baldwin and Mr. Rollins respectively with the Italian variety.

Correspondence.

**** All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

HONEY AS FOOD.

Mr. Griffin's remark in the last number of the *B. B. J.*, that 'it is well known that some people cannot eat honey; producing a rash with some, and affecting others in various ways,' ought not, I think, to pass unnoticed. May I ask him whether he has ever in his own experience met a case in which honey, which he knew to be pure and good, produced a rash? A similar remark has been made once or twice to me, but I have replied that the rash was probably the result of sulphuric acid, or of some other acid used in the process of adulteration. In my household we consume some cwts. of honey each year; and I am convinced that there is no better food for young and old than bread and honey. None of my party has ever had any symptom of the rash too commonly imputed as the consequence of eating honey. The public have been accustomed for so many years to purchase bright-looking adulterated stuff sold under the semblance of honey that pure English honey is often charged with crimes and misdemeanours which should more properly be imputed to its bastard brothers. So good and genuine a bee-keeper as Mr. Griffin will not, I hope, allow the faults of the one to be laid to the charge of the other.—E. Bartrum, *Berkhamsted, Herts.*

IN A BEE-HOUSE.

Before giving you my sixth year's report I will finish the adventures of the eccentric bees begun in the *Bee Journal* of July 1st.

These bees swarmed again on June 23rd and 24th, and for the last time on the 26th. They mixed themselves up with a swarm from No. 6, but in the evening they had apparently separated; one swarm inside the skep and one outside. I got the outside swarm into another skep and hived each swarm in its own hive. Well, I thought I had done this very nicely, but the next morning I found the majority of bees had left No. 7 and gone into No. 6, when finding the hive too full they swarmed before I could put on enough supers. Hived again and put on four supers which were crowded with bees.

The revolutionary bees were at last conquered. They found themselves under a good queen, who made them work to such purpose that I took 78 lbs. weight of section honey from this hive. No. 7 thus swarmed twelve times, upset five other hives, and gave only 30 lbs. of comb honey themselves.

This year is remarkable for the length of the honey season or rather want of any distinct season. For two months the bees kept bringing in a little honey, but there was no rush of it as usual. June began with rain and ended with cold. July very dry. The curious thing is that one hive gave me the largest take I have yet had, so that I am somewhat puzzled as to whether the season caused the bad result or whether it may not be owing to those eccentric bees.

No. 1885.	Comb. lbs.	Extr. lbs.	Total. lbs.
1. English, swarmed three times ...	17	12	29
2. Ligurian, swarmed five times ...	10	13½	23½
3. English, swarmed three times ...	5	12	17
4. Hybrid	37	11	48
5. Dead	—	—	—
6. English, swarmed four times ...	78	6½	84½
7. Ligurian, swarmed twelve times	30	6	36
8. English, swarmed six times ...	28½	12	40½
9. Hybrid, swarmed once	101	21	122
Total	306½	94	400½

Again the black bees seem behindhand as No. 6 was helped by the Ligurians. The bees swarmed thirty-four times, a rather large order when it is divided over only seven hives. No. 4 was a teacupful of bees nursed through the winter. They had not filled the hive till June 17, but they have gone into winter quarters as strong as any of the stocks. A curious incident occurred with this hive. On July 26 I took off the super and put on quilt. After I had finished I saw the queen on the ground inside the house. As I had not touched the frames it was a puzzle how she got there. No. 5 lost the queen, started a fertile worker, and was destroyed. This is my second experience of a fertile worker. The quantities of honey given are carefully weighed. May I again suggest to your correspondents the advantage of giving weights instead of number of sections?

Honey has become increasingly difficult to sell; and what is to prevent it, at this present rate, going down to 3*d.* per lb.? A large grocer in my town will not buy English honey, but prefers that adulterated mixture called Californian! It seems to me a cruel kindness to persuade the labourers to keep bees which cannot possibly pay for the labour devoted to them.—G. C. E., *November 2.*

COLOUR OF HIVES AND INSTINCT OF BEES.

Kindly allow me a short reply to 'Corrigenda' on the above subjects. In his reply he animadverts on my inconsistency of argument and fact. Now, sir, where will he go for his facts? I admit my argument may appear perverted from 'Corrigenda's' standpoint, *re* the colour of hives. Now premising, as 'Corrigenda' admits, that queens rarely leave their hives, I ask of what utility colour of any shade can possibly be to a queen-bee. Say she leaves the hive on her wedding trip, probably the first time in her life, that she has emerged from nearly total darkness into the bright sunshine, is she to be credited with supernatural powers of observation, with an extraordinary memory that can take in at a

glance and retain the remembrance of the colour of the home from which she emerged? No, sir, most certainly not; she returns to that home by *instinct* implanted in her progenitor by the Creator and transmitted from one generation to another.

I may inform your correspondent that having kept bees for several years I have never to my knowledge lost a queen during her wedding trip, and I have paid some attention to the matter. All my hives are of one pattern, all of one colour, viz., stone, and stand in rows quite close together. I used to feel some diffidence in placing them side by side till Mr. Blow went to Cyprus and told us how the Cyprian apiaries were arranged like drain-pipes in stacks with fronts all plastered like a wall, and simply holes made in the plaster while soft for entrances.

I have no doubt queens have got lost in the past, and will again in the future, on their wedding trip, but the loss may very probably occur from other causes than the one under discussion: in fact, I am inclined to think that when it does occur, it is from contingencies over which we have no control. She may be caught by a swallow or a swift skimming along at lightning speed, or may fall a prey to the tit or sparrow, and be carried off as a dainty morsel to their voracious progeny. Then, even supposing worker-bees can and do distinguish colours, and that they may—as Sir John Lubbock contends—have a preference for the colour blue, we must not overlook the fact that worker-bees are constantly out in the sunshine in quest of the needful, flitting from flower to flower among the beautiful colours of flowers and may have the intelligence to distinguish colours; but not so our queen-bees, they leave the hive for fecundation, then, perhaps, return to the darkness and obscurity of the hive to emerge another year at the head of a swarm.

How is it possible in the interior of a hive or bee-nest for a queen to know anything of colour? I don't think if she could answer the question herself as to colour she would give any better answer than the blind man who thought, or rather said, that the colour scarlet was like the blast of a trumpet.

And now, sir, a few words on 'instinct.' In using the plural number in my jotting, I admit I was under the impression that it is a generally received axiom that bees do return to their hives by *instinct*, that *instinct* teaches them to gather and store food in summer for consumption during the winter; 'natural necessity' would only prompt them to gather food for present needs.

Then 'Corrigenda' advises me to apply a test to my bees' instinct that I submit would stagger and confound the superior (?) intelligence of the *genus Homo*. He says, 'Move a hive of bees three miles, but don't let them fly for twelve hours, then take a hundred bees, put them in a box and the box in your pocket, walk half-a-mile, let them go, and see how many *instinct* will bring you back.' I say none except by chance; but the chances are much greater that a large percentage will find their way back to their old stand by instinct (that is, promising the hundred bees taken from hive should happen to be fielders).

Now, sir, let us apply a similar test to 'Corrigenda,' with his superior intelligence, his reason, his mind. Let me suppose some strong giant take his house bodily, just rendering it perfectly dark (as one would the hive of bees), and place it in a strange district, then slip 'Corrigenda' into a sack or box (with no peep-holes, mind), and take him a distance and release him. I opine he would not be very much in advance of the poor little insignificant bees in finding his way back to the new position in which the giant had placed his house, or even to the old spot, unless there were some features in the surrounding country that would prove a guide to him. I consider the chances would be very remote of his discovering the [illegible] of his [illegible] (withstanding his superior physical powers of endurance giving him a great advantage over the poor bees, placed in similar circumstances.

Oh shade of Darwin, and Messrs. Romanes, Fabre, Mivart, and Lubbock, listen! It is not 'instinct,' it is 'natural necessity' that brings back the industrious little labourer the bee after it has collected its load of food.

I ask 'Corrigenda,' is it natural necessity or instinct that teaches the sphex (a wasp-like insect), after it has laid its eggs in a hole, to seek a spider which it paralyses by stinging it in its main nerve-centre, then to bury the body of the spider with the eggs, still alive, though paralysed, and consequently it remains fresh for the grubs of the sphex to feed upon when they hatch out. If 'Corrigenda' admits *that may be instinct*, then I maintain that our little friend the bee returns with its load of pollen or honey for the very self-same purpose, viz., providing food for future generations of bees by instinct.

The question of how the sphex learned to sting the spider in its main nerve-centre remains, I think, unanswered. Darwin suggested that having observed by their intelligence that their prey (food) was paralysed when stung in a certain part the action became 'instinctive,' *i.e.*, memory transmitted from one generation of sphexes to another.

It is palpable that if each generation or individual sphex had to discover that their food could be kept in an edible condition by being paralysed by stinging in a certain part, the genus would have become extinct long ages ago; and so, also, if bees had not that instinct of providing food in summer for winter consumption they must also have become extinct; and I still believe that bees know their hive by instinct, that they fly straight back to their hive with their gathered treasures by instinct, that they work for the good of the community (of which they individually are as mere cyphers) by instinct.—WOODLEIGH.

FOUL BROOD.

Some time ago I observed that you recommended one of your correspondents to use carbolic acid with food given in the usual way. My experience is that at no time of the year will the bees take it in that way, even when only half as strong as Mr. Cheshire prescribes. If poured into a comb and placed inside they will forsake that part of the hive at first, but they do clear it out after a time. The effect is then very good; the queen lays freely, and both brood and bees have a healthy appearance, but later on you find foul brood again, and this after having destroyed the bad combs and well sprayed the rest with what Mr. Cheshire calls foul-brood solution or one in twenty. I have tried this many times with Mr. Cheshire's and Calvert's No. 1, 2, and 4, and always with precisely the same result. But though the bees will not take it from a bottle feeder inside the hive they will take it very freely indeed when placed outside, near or at a distance from the hive, in fact, they set to work and rob vigorously. Some time ago I went to see a very successful skepman, he had over 100 hives, some of them splendid, but, much to his surprise and disgust, I told him he had got foul brood.

I drove them and took them away for experiment, and they turned out just the same as before. Queen laid well, brood and bees looked healthy, but after a time foul brood again. I shall be curious to see how the poor man gets on next year.

This is not encouraging, but I intend to persevere. At present I can control the disease, but not cure it. I never could see why such a mystery was made about

the drug. You had to get it from Mr. Cheshire's agents instead of being told to get Calvert's No. 1, 2, 3, or 4. Mr. Cheshire's is 1*s.* 6*d.* an ounce; Calvert's No. 4 is 2*s.* 6*d.* the 16 oz. bottle. The effect of all is precisely alike. I shall always keep No. 4 by me if only to spray empty combs, hives, and quilts; for this purpose one in twenty is not a bit too strong.

I have several hives of Syrians, and as these creatures insinuate themselves everywhere, of course they took the disease, but I observed them make much greater efforts to get rid of it. I have heard these Syrians spoken of as pests, but I cannot quite view them in that light. They certainly require somewhat different handling than either blacks or Italians, but it is to be done, for I have constantly manipulated them one after another without much trouble, though I should not recommend a nervous or clumsy person to try. Smoke is of no use whatever. They are in many respects different from ours, wonderful breeders, and vastly more active, and should never be moved from one hive to another, or in fact disturbed at all, except in fine warm weather. I am not quite sure that they could be driven out of a skep in the ordinary way.—M.

WIRED FOUNDATION.

I see from time to time in the *Bee Journal* that there are bee-keepers inquiring about wired foundation, and wanting to know whether to use it or not.

For the last two or three years I read in the *American Bee Journal* about this wired foundation and of its great success when used by the apiarists of that country. Last spring I therefore determined to try it, and I sent an inquiry to the editor about it, who was kind enough to supply me with full information through the *Journal* (as per spring numbers of same).

I purchased about a hundred and eighty sheets of the kind known as Van Deusen flat-bottomed wired foundation; and as I have upwards of a hundred and fifty combs built on this foundation during the past season I am able to speak with some degree of experience. This was a warmer summer than we have had for a long time, at least, such was the case in the north of Ireland; and I had not one single case of a sheet of this foundation either sagging or breaking down. I have inserted sheets into hives of 10 and 20 frames perfectly crowded with bees and where the heat would be great, and every sheet so inserted was built in the most perfect manner.

I had over a hundred of the above combs almost completely filled with brood, and in no case was there a refusal to rear brood on the cells through which the wires passed, and I did not notice a case of brood reared on such wired cells not hatching.

This Van Deusen wired foundation has a flat base, and the wire is incorporated in the wax forming the foundation in such a perfect manner as to be exactly in the centre of the base and does not therefore come in contact with the brood. I have used it in the top storeys of hives for extracting, and also in the back compartments of long 20-frame hives, and I have extracted four and five pounds of honey from each frame after being but newly built and never damaged a cell by so doing. I have nothing against this foundation and only the highest praise in its favour as the best foundation I have ever used for the brood-chamber and extracting. I cannot be accused of having an axe to grind as I am in no way interested in bee-keepers' supplies, my sole reason being the good of bee-keeping. In use, this foundation is no more expensive than the ordinary kind, as its cost is about three shillings to two shillings and ninepence per pound, according to quantity, and you have eight to nine sheets standard size to the pound. I used nine, exactly as advised by the editor in his reply to my queries, and the cross wire to hold the same in perpendicular was of No. 32 size.

If this foundation is not properly secured to top bar, or this cross wire not used, then they who fail by so using it improperly need not blame the foundation, but their own stupid blundering. I make a groove in the underside of the top bars of all my frames and run the foundation in fast by the use of melted wax containing one-fourth resin and melted and used by the wax-spoon process described long since in the *Journal* by Mr. Hewitt. I would not have a frame having top bar cut through, as often advised, because it weakens the frame, looks unsightly, and is a harbour for eggs of insects and dirt.

By way of experiment I wired a frame myself with this No. 32 tinned wire sewn up through top and bottom bar of frame two inches apart between the wires, and the ends of wire kept fast by being rolled round a little tack driven into bottom bar of frame. I cut a lap bottom to fit inside of frames and nail this on to a board larger than frame, so that the little lap-board will come just half thickness of the depth of the frame. I then run in the foundation, not the above wired foundation, but the sample I used was Abbott's flat-bottomed foundation; as soon as this is done, hold the frame of foundation—top bar down—before a brisk fire or stove until it gets a little soft, and then immediately press the wires into the midrib of the foundation with a putty-knife. The foundation should be kept next to the lap-board, and the wires will then, of course, lie close on to the foundation, and when the foundation is heated a little stroke with the point of the putty-knife along the wire beds it into the foundation. I did eight frames in this way the past season, and eight nicer or firmer built combs the eye could not wish better. They would stand any amount of tossing about, as I put two of these frames into the extractor before being built out and turned very hard, and after being so knocked about they were quite sound, just as I put them in.

I hope the above hints may interest and instruct some of your readers, which is my apology for trespassing on your valuable space.—Wm. Ditty, Junr., *Newtownards, Ireland.*

P.S.—To save correspondence, I may add I obtained the above wired foundation from E. C. Walton, Newark.

THE PECTEN OR COMB OF THE BEE.

Not the least wonderful feature in the anatomy of the bee is that artistic contrivance, which, from its conformation and use, may very properly be termed the bee's comb. As the perception of the bee depends upon the sensibility of the antennæ, it is obvious that those organs, to fulfil their various functions, must be kept perfectly clean, and hence the Great Mechanician, in organizing and creating the bee, anticipated its necessities in this respect, and provided an effective instrument for its relief.

On a pleasant day, if we take our position near a hive, while the bees are passing out and in, we shall most likely notice more than one bee stop a moment upon the alighting-board, raise one of its forelegs, and appear to wipe the antennæ with it; and as the leg is covered with bristles, we might conclude that these answered the purpose of a brush, to cleanse the antennæ; but, watching more carefully, we shall observe that only a particular place in the leg is applied to the antennæ, and examining this place with a microscope, we shall find, just below the articulation of the two longest joints, a semicircular notch, lined with teeth, and just above, a thumb-like appendage, which, upon the leg flexed, extends across the opening of the notch; this thumb presses and retains the antennæ within the notch, and wipes the under side of it, and may serve at other times as a brace to support the joint.

The number of teeth is about fifty, placed close together and even. The right leg has its comb for the right antennæ, and the left for the left antennæ; the combs are used either alternately or both are applied at

the same moment, while the bee is poised upon its middle and hind legs. During the nuptial season, when the drone sallies from the hive, it would be extraordinary if he did not pause a moment at the entrance to comb down his antennæ. The queen, equally with the worker and drone, is provided with a similar pair of combs; and some other insects furnished with antennæ have a similar arrangement for keeping those organs in perfect order.—*Bee-keepers' Magazine.*

AN AMATEUR'S REPORT FOR 1885.

In continuance of my reports furnished you for the past two years, I now send you one for the season 1885, which to me has, I consider, been a very successful one, fully realising my expectations, and far exceeding the ideas of my friends and neighbours as to the amount of honey that can be obtained from bees, especially with the limited time I can afford to give them, as during the whole honey season I am away from home from morning to evening, except for an occasional day that I try to absent myself from business on pleasure, a portion of which I devote to my bees; and in the spring, up to the middle of May, I am unable to give them stimulative feeding, being away from my apiary all the week; but although I have succeeded so well, I cannot at all compare with my brother bee-keepers in England, whether it be for want of attention or in consequence of the English climate being more suitable for the production of honey. It can hardly be from the fact that I live close to the seaside, and consequently acres of what would otherwise be growing honey-producing plants are lost, as those who live more inland have not the same produce as myself; but then I suppose a great many in England, whose experiences are not in your *Journal*, have as small, or perhaps a smaller, produce than I have. I am, however, otherwise fairly well situated, as in early spring a hill adjoining my apiary is covered with gorse (furze) in blossom, which yields an immense quantity of pollen; and to those who have not this, I would strongly recommend the planting of Arabis albida, as the small quantity I set is constantly covered with bees while in blossom, and it commences to bloom in the end of February or beginning of March, and continues in blossom for a long time. I have a great many fruit trees in the garden, and lime-trees near, also white-thorn. Aconites I find blossom rather early, and do not last long.

I trust the report I send will not take up too much of your space, but as I read with interest the reports of others, I hope some of your readers may see something that may interest them in mine.

Commenced season with four bar-frame hives (Nos. 2, 3, 4, and 5), all of which can be worked with sections on top or at back. Three are Association standard frame size, and one (No. 2) is made to be worked with frames, containing four 2-lb. sections in each, at the back of brood-nest. I worked this at back and top, No. 3 on top, and 4 and 5 at back only.

March 1st.—Fed each hive with 1-lb. phenolated candy cake on top under quilt. 15th.—Uncapped about two square inches of one side of back comb in No. 3. 22nd.—Put another 1-lb. box of phenolated candy on No. 5, and uncapped about one square inch of comb in No. 3. 29th.—Uncapped about one and a half square inches of comb in No. 3, and about one inch in No. 5.

April 3rd.—Uncapped a little comb in No. 3. 6th.—Examined all hives, and found a little brood in each. 27th.—Gave No. 2 a frame half filled with comb partially worked out last year, No. 3 two frames, and No. 5 one frame of old comb.

May 10th.—Put super of twenty-one 1-lb. sections, eight of which had comb from last year, on top of No. 2, and the bees worked in them immediately. 19th.—Gave 3 and 4 one frame of sections each at back, and No. 5 two frames of sections. 25th.—Found sections given to No. 3 not worked in, took them away and put crate of twenty-one 1-lb. sections on top (bees did not work in these for two days, when I put carpet round crate, and they went up immediately), and gave frame of sections to No. 4.

June 4th.—Gave two frames, with foundation, in front to No. 4, one to No. 5, and frame of sections to No. 2 (2 lbs.) Frames were put in front so that old frames of comb may be removed occasionally from back, and by thus renewing each year at front none of the comb will become too old. 12th.—Took six 1-lb. sections from No. 2, gave them six instead, and an empty frame, and put crate of twenty-one 1-lb. sections under former super on No. 3. 18th.—Took twelve sections from body of No. 5, and gave empty ones. 23rd.—Took thirteen sections from No. 3, and replaced them with empty ones. 27th.—Took eighteen sections from No. 2; cut out queen-cells from No. 5, and returned swarm (doubt if it came from No. 5, but they united amicably), and gave them two frames of foundation in front instead of two frames of comb weighing 4 lb. 6 oz., which I took out. 30th.—Took 12 lb. 14 oz. in twelve sections from No. 4.

July 6th.—Took one section from No 2, four sections from No. 4, and three sections from No. 3. 14th.—Took two sections and 10 lb. 10 oz. comb from No. 2. 18th.—Took two frames from No. 2, one from No. 3, and one from No. 4. 21st.—Took twelve sections from No. 5. 30th.—Took super (from straw skep in which I had put two swarms, one on 24th and one on 26th July and fed) weighing 15 lbs. 12 oz., and took two sections from No. 4.

August 8th.—Took six sections from No. 5 and six sections from No. 3.

September 16th.—Took 6 lb. 12 oz. comb honey from a swarm in skep.

October 7th.—Took 9 lbs. comb honey from another swarm. 12th.—Took 10 lbs. from two others, and 28 lbs. 1 oz. from a large skep (swarm of No. 2, which issued 11th June), besides 1 lb. 13 oz. taken on 23rd July. This was a very large swarm, and was fed for three or four days after swarming.

The skep from which I took the super of honey on 30th July was also fed, and they were the only skeps that gave me any quantity of honey, so that I would strongly advise uniting swarms if possible, and feeding them. September and October very wet and cold, so was unable to unite some of the swarms in skeps with stock in bar-frame hives, and as I could not manage all that I was reluctantly obliged to smother them. Bees, especially No. 2, were very wicked—they are all blacks—and other bee-keepers say the same of theirs this year, especially in the end of the season.

Summary of Produce.

		lb.	oz.	lb.	oz.
No. 2.	Sections	26	6		
	Comb and run honey including swarms	52	4		
				78	10
No. 3.	Sections	19	7		
	Comb and run honey exclusive of swarms	6	7		
				25	14
No. 4.	Sections	19	2		
	Comb and run honey exclusive of swarms	5	2		
				24	4
No. 5.	Sections	30	0		
	Comb and run honey exclusive of swarms	4	6		
				34	6
Comb from skeps, swarms of Nos. 3, 4, and 5...				38	2
Total produce of four hives				201	4

Of which 94 lbs. 15 oz. was in sections, and 106 lbs. 5 oz. comb and run, besides an additional stock which I sold.

The only feeding I gave in spring, summer, or autumn, is mentioned above, except 3 lbs. of syrup to the stock I sold this autumn, and from which I took 15 lbs. 12 oz. honey as mentioned above. I did not feed last autumn or winter either, as I prefer leaving sufficient honey for food rather than run any risk, and as I have not time to look after feeding.—Box, *Cork*.

FLOWERS WITH REGARD TO HONEY.

In your last *Journal* Mr. W. N. Griffin refers to the above subject. If he think it possible to grow flowers sufficient for a crop of good honey, I consider he is mistaken, that is, flowers and flowers only. The bee-keeper that requires to grow flowers for a harvest must grow them by the acre, and he should go in for fruit or vegetables: then he would have a double chance, for if honey fail he might get fruit or vegetables. Or if he is in the farm line he could go in for clover, which would give him three chances, namely, honey, seed, and hay, which would pay him well if he get a good crop of either; and, better still, if he get besides white Dutch clover for black bees and red for Ligurians. At the same time, all bee-keepers should grow a good batch of honey and pollen-producing plants as well. No matter if you have no more than one hive of bees: it saves hundreds of bees from perishing in the spring and autumn in going a long distance to look for flowers, and in the bad weather in the summer they will stay close at home if they have flowers that they like; and for that it does not much matter, as the bees use the honey. Bee plants act in spring and autumn as stimulants better than any man can give.—H. JEANES.

YORKSHIRE ASSOCIATION.

If you think the following of sufficient interest to insert in the *Bee Journal*, I shall be glad to see you so make use of it, as I have no doubt many bee-keepers here in Yorkshire are, like myself, altogether in the dark as to the doings of the County Association.

But before I say more, I beg to thank you, Mr. Editor, for your courtesy in answering the questions I have put to you during the past season as to the management of my hives, and to express my pleasure at the prospect of having the *Journal* weekly when the new year comes in.

Now to come to the Yorkshire Association. I should like first to know who is the Secretary, and what is his address, and also what the Association is doing. I heard of its holding a show at Harrogate, but the news reached me some time after the event. I am informed that a quantity of honey was sold at the show. Well, I am sure there are a many Yorkshire bee-keepers like myself who would be very glad to hear when and where such shows are to be held, as not only should we be glad to compete, but would readily take advantage of such an opportunity for disposing of our honey. Why doesn't the Association report its business in the *Journal*? If it has some other means of letting bee-keepers know of its existence, I should like to know what they are, for excepting the conversation I had with a friend about the above show, I have heard nothing of it for months. It may be said, 'Join the Association.' So I intend to do; but even then, judging from two or three letters that have appeared in the *Journal* this year, I am afraid I shall be in no better position than I am now. Hence I feel sure that were the Association to let us know what it is doing, there would be many join who now hardly know that it exists at all. Does the Yorkshire Association examine candidates for certificates, and will it allow members the use of the various books recommended to be studied for such examinations?

Some time ago, Mr. Editor, you gave us your method of doubling hives during the past season, and kindly promised to give the results in a later number. I am interested in this, and I find from the accounts in the Bligh competition that those who worked their hives for extracted honey did not do so well as they who took it in both forms, and should like to know how your results compare with these, seeing that another year I intended to work for liquid honey (sections being so bad to sell here) unless the comparison is very much in favour of the 'dual' system.

I began last season with four bar-frame hives and three skeps, and have taken honey to the value of over 20*l*. I have driven between thirty and forty skeps for cottagers in the neighbourhood, who I find consider the cost of starting the new system too great for them to incur. I sent eight hives to the Moors, but this year they have done very poorly indeed, no honey in sections, and most of that in the body of the hive unsealed when I got them home. I have packed up twenty-three hives for winter, all in fair condition.—BLACK BEE.

[Mr. Huckle, secretary to the B.B.K.A., will be happy to furnish you with the information required of the Yorkshire B.K.A. The report of doubling hives will be forthcoming. —ED.]

PAINTING HIVES.

How is it that the cottager seldom loses a queen, although you can often find fourteen or fifteen hives, or rather straw skeps, almost close to each other, and continual swarming going on all through the season? If you go to a cottager's apiary you will see that he does not prepare for swarms: and as they come off they are hived in skeps, boxes, old flower-pots, and anything that comes first; and then come the coverings—old bags, worn-out coats, buckets, &c. Some have hackles kept in place with iron hoops, old frying-pans on top of some of the bags to keep the wind from blowing them off; and others with slates, tiles, bits of wood, coal scuttles, saucepans, and a dozen other things, so that the queen has no trouble in finding the hive she left, there being too much difference in them. I have often seen thirteen skeps almost touching each other, and although they have swarmed two or three times each they all have queens in the autumn. The bees do not fight, although they are so close. It therefore seems desirable that bar-frame hives should be painted, so that the difference may be marked, it being best for the workers as well as for the queen.—H. JEANES.

THE USE OF SKEPS.

I see lately one or two correspondents have been giving the yield of honey obtained from skeps, perhaps it might interest your readers to hear of the result from a skep in my apiary. In the summer of 1884 I stocked a large flat-topped skep, measuring 18 in. in diameter, by 7 in. deep, outside measurement. I put top bars along the crown of the skep, and sewn fast there with strong cord. I attached little strips of foundation half an inch deep to said top bars. I placed a fair-sized swarm of hybrid Ligurians in this skep, and in 1884 they completely filled out the skep with combs, and stored enough honey, on which they wintered. In spring I gave them three or four feeder-fulls of syrup, which they took through the 4-in. circular hole in the crown of the skep. They increased at a great rate, and by 1st of June were like swarming, when I placed a box on top of the skep, containing eleven standard frames of comb. I had a very thin bottom to this box, and cut a 6-in. square hole in the centre of same, which I covered with excluder zinc, and the zinc thus came over the hole in the crown of the skep. In a few days, the whole eleven combs were crowded with bees, and storing honey therein. I afterwards placed eleven more frames on top of the others, and soon had the whole twenty-two frames covered with bees. I was extracting honey quite frequently at this time, and had taken 49½ lbs., but unfortunately they sent off a swarm (bad luck to them!)

and so my arrangements were foiled, as they ceased then to store much honey in the top storeys, on account of the hatching brood below giving them empty cells. This is the great failure with skeps, as you are unable to inspect the brood-chamber to try and hinder the swarming. They sent off a second swarm, which I sold for 15*s.*, and the first swarm I retained. After the second swarm came off, I took away one set of the combs used for honey-storing; and when the young queen commenced to lay they began again to deposit some honey above, but the weather turned in bad, and I soon had to take away the remaining eleven combs; and when the bees on these were brushed into the skep, it has left me a very strong skep, which I only had to feed very little syrup. Altogether I got 63 lbs. of extracted honey, and two very strong swarms from this skep; and if they had not swarmed I would have gotten twice as much honey, as the season was in its glory when they cast that unlucky first swarm. This will give your readers an idea of what can be done with a skep under proper treatment, and not any bother with winter packing, spring treatment, and little or no expense in purchasing expensive hives, foundation, &c. If spared to next year, I may possibly give the result from the same skep in 1886, which for the *Bee Journal*, the editor, and his numerous readers, I hope may be prosperous, and full of pleasant and profitable recollections.—Wm. Duffy, Jun., *Newtownards, Ireland.*

BEE-KEEPING IN SOUTH WALES.

The past season has been a most excellent one. In some parts of our country bee-keepers did not do as well in the early part of the summer as they did during the same months last year, but on the whole the last season has been the best we have had for some years. Some very early supers were taken, I saw several in full work in May. Several bee-keepers have succeeded in disposing of their honey at satisfactory prices, but others have still a quantity on hand. Cannot you assist us by publishing in the *Journal*, from time to time, recipes for utilising honey at home? It is used now in a variety of forms, but bee-keepers generally do not know how. I have not met any one who thinks much of any benefits to be derived from the Honey Company or expresses any friendly feeling towards it; indeed if the prices it offers are to become the market prices of honey many if not the majority of bee-keepers will give up the business in disgust. The interest taken in bee-culture continues to increase among all classes not excepting the cottagers in whose behalf the various Associations labour.

The Carmarthenshire Association commenced this year with an adverse balance in consequence of which the committee thought it advisable to hold no annual show. The bee tent attended at Pembrey on the 11th June, the Carmarthen Flower Show on the 30th July, and Llanelly Flower Show on the 18th August. Permission was also granted to erect the tent in the show yard of the Llandilo Agricultural Society on the 16th September; but at the eleventh hour this permission was withdrawn, as an intelligent member of their Committee predicted that the cattle would be all stung to death. Prizes, however, were given in the garden produce department for honey, which I am sorry to say were taken by Mr. Thomas Jones, Llandilo, and myself. I say sorry, because neither Mr. Jones nor myself would have competed against *bonâ fide* cottage members had they entered. I hope another year they will put in an appearance.

On the 12th August I acted as judge in the honey department of the Monkton and South Pembroke Horticultural Society's Show, held in the Market Place, Pembroke. The number of exhibits was not large, but very good, especially the 1-lb. sections. On the following day I attended, in the dual capacity of judge and expert, the annual exhibition of the Pembrokeshire Association, held in the Market Place, Haverfordwest, in connexion with the Haverfordwest Horticultural Society's Show. The exhibits in the honey classes were again good, the extracted honey in its turn excelling. Messrs. Abbott took the first prize for appliances with their usual complete collection. The makeshift bee tent that had been erected was well filled for each display. It would be much to the advantage of Pembrokeshire bee-keepers generally, if those in the south part of the county would come forward to assist the County Secretary, Mr. Hicks, to develope the Association so as to reach the bee-keepers in all districts. The county is a large one, and the railways few, consequently united action is necessary for thorough work. While staying with friends on the north coast, the only bees I could find were a stray lot which had located itself in the roof of an outhouse. This lot, alas! I was the means of destroying. Being pressed to remove the 'horrid' bees, I had the slates taken off, and removed the combs, but unfortunately could not save the bees. The only friend the bees appeared to have was one young lady of five years of age, who offered to give up her share of the honey, to be returned to its legitimate owners, when she was told that they would otherwise starve. Bee-keepers are on the increase throughout Pembrokeshire, and the tour undertaken by Mr. C. N. White for the B.B.K.A. last August is bearing fruit. The 3rd Sept. again found me back in the county, this time to attend with our bee tent the St. Bride's Cottage Garden Show, at the request of Lord Kensington, on whose grounds the show was held, and by whom the prizes were given, no charge of any sort being made for admission. I here received the assistance of Mr. E. Lees of Dale, formerly a member of the B.B.K.A., and who will, I am sure, willingly assist any of his neighbours who wish to improve their system of bee-keeping. Great interest was taken in manipulations, but to almost all the spectators advanced bee-keeping is a thing unknown. Prizes were offered for honey, the exhibits being by no means well put up, comprising chiefly slabs of combs from skeps, and strained honey in glasses. On my way home I called to see the honey department of the Llanboidy Agricultural Show. The exhibits were numerous for a district show, and very good, the exhibitors showing that they understood how to put up their produce in an attractive form. The prizes here were given by Mr. and Mrs. Powell of Maesgwynne. On the 21st August I attended with bee tent the Cardigan Horticultural Show. This district also seems to have caught the bee fever somewhat sharply. One of the best lots of comb honey I ever saw was exhibited at this show, viz. a large Pettigrew skep almost filled with honey, the brood nest being contracted to a very small space. The colour of the comb proved it to be the work of a swarm of this year. The gross weight was I think 87 lbs.

Recent *Journals* have contained accounts of swarms crossing one and a half miles of sea. This summer, while crossing in a boat from Ferryside to Llanstephan, at the mouth of the Towy, I noticed two or three single bees on the wing. The distance at high tide cannot, I think, be less than one and a half miles. These were presumably either on their way to, or return from their feeding ground, which could not possibly have been less than two miles from their hives, probably much more.

I must congratulate you on the proposed weekly issue of the *Journal*, which will, I am sure, be gladly welcomed by all, unless I except the poor secretaries who have to circulate it among county members, and whose work will thus be greatly increased. I hope members will endeavour to assist us by seeing to the regular transmission in future, if so, the past shall be forgiven, much as they have offended.—L. Oswald Lewis, *Hon. Sec. Carmarthen, B.K.A.*

P.S.—I hear of no movement in Glamorganshire towards starting an Association. Cannot any one be found

to take it in hand? I am sure that if any one would undertake the work of secretary, a number of the local bee-keepers would assist.

CRITICISM DESIRED.

I would like to give one or two observations concerning bees in the next issue of the *Journal*. To begin, I find bees very difficult to handle in chilly weather or when it is gloomy, and it would save many a hasty expression, afterwards regretted, if left until the sun shone.

Natural swarms do much better than artificial, the latter seem discontented, and very inclined to sting, and the stocks from which they are taken do not rally so quickly as those naturally swarmed, and instead of being beforehand, much valuable time is lost.

Feeding swarms is certainly a great advantage, and by doing so, a much larger amount of honey can be obtained, as the syrup goes to build the comb, and the honey is stored in the cells instead of being used for comb-building, the small outlay in sugar being greatly surpassed by the larger yield of honey.

I have found Mr. Alfred Rusbridge is correct as to the best way of supering, on top of frames being by far the most profitable either for sections or extracting, the sections being also of much finer appearance. The bees seem greatly to dislike going through the excluder at back of hive, but do not object to it on top, and I prefer using it than not, as then I feel quite easy as to the safety of the queen when shaking off the bees.

Bees with a dash of Italian in them are far beyond the common blacks, they are better workers, defend their hives more resolutely, withstand disease a great deal better, are much handsomer; I also do not find them 'better stingers.'

The hive to give the best results should have accommodation for a brood-nest of thirteen or fourteen frames rather than for nine or ten frames, so that one section-crate on top, with such room below, would be more likely to check swarming than less room below and two section-crates on top, and also much less bother in removing sections. Such is my experience in bee-keeping, and I would like for others to criticise my remarks in a friendly spirit. I would also be glad to know how the Honey Company is progressing.—APIARIAN.

INVERTED SKEPS.

I guess, as our Yankee cousins say, you had a most interesting meeting at the last quarterly conversazione of the B. B. K. A. I note especially Mr. Jesse Garratt's introduction of the question of inverting skeps. Our friend from Herts, Mr. R. T. Andrews, who probably knows personally more cottage bee-keepers than any other county representative present, was not aware the experiment had been tried in his own county when the subject of 'reversible frames' was broached.

We are all on the alert for something new, but there is 'nothing new under the sun.' True, reversed skeps are not 'as old as the hills,' but our caustic friend, the 'Lanarkshire Bee-keeper,' has 'furraged' out a fossilised wood-cut of an inverted skep, which he says appeared in a Dumfries paper a quarter of a century ago.

Oh, Scotland! we are nowhere beside you; you beat us every way: in ideas, in inventions, in hives,—nay, more, in badly-treated bee-keepers too, which is all the more grievous considering what public benefactors they have been to our fraternity:—but this is digression.

Some of your readers will want to know more about inverted skeps. Does 'A. E.' recommend the practice? Well, yes and no. I do lots of things myself that I only recommend to a very select few of my friends—bee-keeping friends, I mean, of course. To recommend this practice wholesale will be probably to cause wholesale failure and disgust. They were wise counsels of 'Felix's' you quoted from the *Journal of Horticulture*: and in the hands of a painstaking bee-keeper skeps may be inverted with success.

As Mr. Garratt pointed out, we will suppose the bees are hanging out idle, you super them over the top in the ordinary way, and if they start to work, well and good; leave them alone. If the sun is blazing hot screen them well with shade; that is the cause of their swarming and leaving an unfinished super. There is a point it is well to bear in mind: bees will not tolerate over 95° Fahr. in their hives for very long; if they cannot fan it down, out they boil. But we all of us know, for some unexplained cause, bees sometimes refuse to take to the super; you see it, but cannot avoid it. They still hang out, the sun is blazing hot; you know the bees will soon get the swarming fever, and you have got it already: and enough to give it you. What is to be done? Invert the skep. Don't plug up what was the top hole, allow them to work through that. Fix an adapting-board over the skep; leave plenty of access to the super; stop up what was the flight-hole, and await the results. The bees will soon carry up their stores, as they do not care to travel over it at the entrance of their hives, which previously was their larder; and as soon as the super is full, unless there is an exceptionally good glut on, the sooner you restore the skep to its original position the better for the bees. There is a drawback to the practice; the queen is very prone to enter the super, and often excluder zinc will not keep her out. If a straw skep is used for a super she is, I believe, more liable to do so than if a sectional super and adapting-board is used. The practice is barbarous; I have often intended to write about it, but hesitated. Mr. Garrett, being more courageous, deserves more credit.

I think Mr. Marshall, of Buncefield, could tell us something also, if he will. He has large experience, and having proved all things, makes a practice of only sticking to what is good.

And now, indolent, slovenly bee-keepers, who are 'ever learning but never coming to the knowledge of the truth,' if I thought you would try this practice and leave the hives inverted until November before you restore them to their original positions, you would never have known in these columns the experiences of—AMATEUR EXPERT.

FEEDING BEES; INVERTED HIVES.

A bee-keeper in this town has been feeding his bees in the autumn and spring on linseed meal and Demerara sugar, equal parts, which answers capitally. I have never read or heard of this manner of feeding before. What is the opinion of the readers of your paper on it? And have any bee-keepers tried the inverted straw skeps with bees? I inverted one and put seven frames, which were three centre ones, partly filled with comb and honey from another hive, tied up with tape. On 20th September I put three condemned lots of bees in it, and they are now looking very healthy. I think this to be a capital plan for such lots, and shall adopt it in future.—BEE-KEEPER.

BEES AND HONEY IN A TREE.

We had a very interesting occupation this afternoon in felling a Spanish chestnut in Ockham Park, Surrey, and taking the honey from some bees that had taken up their quarters there for the last seven years. They had found an entrance thirty feet up the tree, and were extremely strong this summer. We soon brought the tree to the ground, and, having subdued the bees, proceeded to cut it up in three-feet lengths, there being no less than five ere we came to the end of the honey, so making in the total some fifteen feet of comb.

It was a rare and interesting sight to see piece after

piece split open displaying masses of comb, and, strange to say, in the very heart of all a bird's nest entirely hemmed in with it. The body of the bees' nest has been taken by the agent, who intends introducing one of his swarms into it next year; no doubt it will make comfortable quarters for them,—a rustic bee-hive, and an ornament when decorated with creepers.

I enclose a few of the bees; are they not Ligurians? [Yes.—Ed.] If so, the theory of one of your correspondents a few weeks back, in a letter stating that this class of bee preferred and did better in elevated positions, is somewhat confirmed.—Wm. K. Jenkins.

MEAD.—STINGS.

I should feel obliged if you would publish this old receipt for making white mead. Those who try it, I think, will try it again.

How to make White Mead.—Take a gallon of honey and eight gallons of water, and boil it well, till it comes to six gallons; then pour it into a large vessel of earthenware, let it stand till it is almost cold, and then put into it a little yeast, to work it. When it has worked a while, put it into a rum cask, and stop it close. Let it stand two months; then bottle it off, and put into every bottle two cloves and a little lemon-peel. This receipt is almost one hundred years old.

Stings.—I have found tincture of myrrh rubbed on a sting to take away the pain in a few minutes. It must be rubbed on immediately after being stung.—Sunrise.

BLIGH COMPETITION.

Our vicar here takes a very great interest in bees, and has inserted in the *Parish Magazine* for this district a condensed account of the Bligh Competition; but he would very much like to have been able to state the 'time' spent by competitors, as that may induce many to go in for bee-keeping who at present *think* they have not sufficient leisure time.

I was surprised at not seeing any mention made of it in *B. B. J.* for Oct. 15th, as it is one of the rules that all time spent must be stated.—J. Arnold, *East Molesey*.

PFARRER DR. DZIERZON.

A BIOGRAPHY WRITTEN BY MYSELF.

Translated from 'Gravenhorst's Deutsche Illustrirte Bienenzeitung,' *No.* 12, 1885.

(*Continued from p.* 355.)

My successor in office, Pabel, informed against Pfarrer Kursawa of the neighbouring parish of Bankwitz, with whom I had been on terms of friendship ever since the commencement of our studies, sixty years ago, and in whose garden I kept a considerable number of colonies,—the information stating that Pfarrer Kursawa had paid me a visit on my seventy-first birthday and had even taken dinner with me. Although several times punished with imprisonment, this fanatic again and again annoyed and insulted me. The last time I went to the church at Carlsmarkt, where I had been officiating for thirty-four years, he did not pause as he stood near me, sprinkling the holy water as is customary during high mass, to exclaim audibly to all the congregation, in reference to me, who am twice his age: 'This person still has the impudence to come here where he has no right to be.'

In order never again to expose myself to such insults I decided to leave Carlsmarkt for ever, where I had spent forty-nine years of my life, and I removed to the place of my birth, where I am living in undisturbed quietness with my nephew, the youngest son of my brother, my time being wholly taken up with looking after my bees. We live indeed a hermit's life here. At first we lived in the village near the school and church, but we have lately removed to a new house, the building of which was commenced last year and has just been finished. It stands some distance from Lowkowitz near the boundary of the neighbouring village of Matzendorf, where rape and white clover are pretty extensively cultivated and where the bees therefore are much more favourably situated.

My brother had already commenced laying out the garden here for an apiary and had planted it with fruit-trees, but my nephew has enlarged and improved it a great deal. The area of the orchard is about a couple of morgen,* but that of the apiary proper scarcely exceeds half morgen, and only by arranging the stocks in piles of 6, 8, 12, to 16 colonies under one common roof, has it been possible to place about 200 colonies there. In the village itself we have two other apiaries containing a little over sixty colonies. The hives being piled up in various parts and corners of the garden, it is difficult to give an illustration of the apiary, and, unfortunately, when the photographer came here after a pretty long journey from Kreuzburg, the weather was very unfavourable, the branches of the trees laden with fruit moving to and fro which rendered it difficult to take a good photograph.

The view all round is open and pleasant, and, in spite of my being so isolated here, I am quite contented, surrounded as I am by my bees, which will transform even a desert into a paradise for him who has a receptive mind for the works of the Almighty and the wonders of Nature.—Dr. Dzierzon, *Lowkowitz, 4th August*, 1885.

Foreign.

SWITZERLAND.

Cure of Foul Brood.—We gave on page 304 a method of treating foul brood by means of camphor in solution, described by M. Adèle Jarrie in *L'Apiculteur*. In this description M. Jarrie omitted to mention the proportion of camphor used to syrup. In the November number of the same journal this mistake is to a certain extent rectified. We are still in the dark as to the exact amount of camphor to put into the solution, for a *pinch* does not represent any definite quantity. The proportions are, four pinches of powdered camphor to one litre of syrup a little above tepid temperature, to be well shaken and given to the bees.

FRANCE.

In France there are two classes of bee-keepers, the *finistes*, or those using straw hives or hives with fixed combs, and the *mobilistes*, or those using hives with moveable combs. The *finistes* are far the greater in number; they have been led by M. Hamet, who for twenty-nine years has conducted *L'Apiculteur*. In this journal he took every opportunity of denouncing moveable comb hives, and attributed foul brood to their use. He was a man quite after Mr. Pettigrew's heart, and has done quite as much against moveable comb hives in France as ever Mr. Pettigrew did in England. Our readers will therefore be surprised to hear that he has at last, like M. Joly (another prominent French bee-keeper), been converted to *mobilism*. In the report given in the *Bulletin de la Société d'Apiculture d'Eure-et-Loire* of a meeting of bee-keepers, held at Chartres, we read with surprise and pleasure the following words:—'M. Hamet continued the discussion, and said attention must be paid to having large populations in hives, *preferably the frame-hive*, which appears to give the *best results*.' We congratulate Mr. Hamet and his readers on his conversion from finism to mobilism; and have no doubt that if he brings the same energy to work

* One acre=a little more than 1½ morgen.

in favour of moveable comb hives as he has for twenty-nine years used to oppose them, that great progress will be made in bee-keeping in France. We hope that many of the readers of *L'Apiculteur*, if not the whole of them, will follow his good example.

SOUTH AFRICA.

Notes on Bee-Keeping.

Just recently I have had an opportunity of *seeing* for the first time a few numbers of your excellent periodical, a casual inspection of which was sufficient to assure me of its extreme value as well to the incipient bee-keeper as to the more advanced bee-master. The numbers I refer to were the later ones of 1884, containing a copious index to the complete Vol. XII., and including the highly instructive papers of Mr. Cheshire on the reproductive organs of the queen bee.

In England, having been for many years a bee-keeper and bee-observer, a humble disciple of the old school of Langstroth, Dunbar, Golding, and others, since my residence in South Africa, of more than fourteen years, bees have naturally received from me a considerable share of watchful attention from pure love of the occupation. A bee-paper such as yours would have added considerably to my interest in the pursuit, and have probably opened up fresh avenues of thought to one entirely dead to progressive bee-literature, being isolated from all but the most antiquated notions and for the most part given to think out bee-problems for himself.

The climate of the Cape is so remarkably genial that but for extreme droughts which prevail occasionally in some districts it would be unparalleled for bees. As it is, wild bees are very abundant; they multiply very rapidly, and where honey is to be gathered there is none lost.

Bee-keeping is but little practised, and then for the most part in the rudest manner. Personally I have endeavoured to inaugurate a bee-keeping movement, but, with one or two exceptions, there is very little disposition to give it a trial. The few hives I keep are for mere pleasure's sake, though, but for certain disadvantages of locality, &c., they might readily be made ten times as many.

But to return to the *British Bee Journal*. I have been much interested in looking through the columns of the index, and noting the various thoroughly practical matters referred to, and the numerous subjects discussed, and one would say already exhaustively treated, in your pages. Many of these subjects have long claimed my close attention, and I am very desirous to learn the various expressed opinions of your correspondents, and the well-ventilated experience of your constant contributors.

On page 53 of *The Honey Bee*, and in the Appendix and Glossary thereto, page 10, you may observe that under the head 'Colony,' reference is made to a very large number of bees under one roof working together in perfect harmony, the off-spring of several separate fertile queens, each daily contributing her quota of strength to the hives. By my system of hiving, which I take it is to this extent at least original, I can at any time establish such a 'colony,' the numerous advantages of which I need not expatiate upon. I have had as many as four such queens under the same roof, and, but for the contracted limits of my situation, in the centre of town traffic, the number might be still further increased. As it is, such a hive becomes so strong in bees, and their stores and brood make them so jealous, that I am periodically obliged to divide them up and remove the brood-sections one after the other out of the way, each constituting in itself at once an artificial ready-made stock. I see no allusion in your index to any similar method, and since I have seen the *B. B. Journal* am anxious to know if any such *desideratum*, or rather *desiderandum*, has ever been tried with success.

To 'foul brood' (technically *Bacillus alvei*, I think) I notice that considerable reference is made. Happily, since I have been in the Colony, I have seen no instance of this serious plague, though, judging from the index, &c., to Vol. XII., I should conceive that it was already brought within the limits of successful treatment. My own personal experience of this disease in England was in the worst case consummated in a radical manner by breaking up the contents of the hive, burning all the foul comb and boiling the honey, isolating the bees on pure honey slightly impregnated with weak solution of *hyposulphite of soda*, which, in this disease, from results of syringing and feeding in milder cases, deserves, I think, a fair and thorough trial in severe ones.

As before said, I have happily seen no 'foul brood' in the Colony, and during my entire experience of bees, ranging over twenty-two years in England and elsewhere, I do not remember ever seeing foul brood in any other than frame-hives; not but that the plague may break out anywhere under efficient cause, but it has always appeared to me that the history of its progress among bee-keepers is associated with bar-and-frame hives. Not, again, that bar-and-frame hives necessarily produce the disease, but that man, by his meddlesome interference or his ignorance of how to proceed, not grasping all the consequences, occasions at times, and heedlessly transfers, a malady among his dumb servants that he finds great difficulty in contending against, and does not always succeed in effectually stamping out. From these few remarks it may be gathered that I do not believe bees so naturally liable to this and other diseases, and that the very few affections with which they are visited are mainly due to conditions which have been forced upon them, and against which they have no power of resistance. For more than twelve years I have been in close contact with the honey bee in its wild state, and though I am far from thinking it could never occur, I have never yet seen or heard of an instance where every species of Vandalism is periodically practised for the sake of honey, of foul brood in a wild bees' nest. I know the ready reply will be that the *Bacillus alvei* of the distemper has never yet been introduced to the Colony. It may be so, but on the other hand I feel satisfied that if bee-keeping were to become general, such a contingency would, without the introduction of germs, occur, and the evil influence would rapidly spread. I say this because I am convinced that though frame-hives are in every way preferable to any other kind of hive, even in the matter of brood, yet knowledge has still to be bought by experience, and until that knowledge of manipulation and the habit of self-denial is gained, foul brood, through a variety of so-called accidents, would be more than likely to show itself.

Bee pestilence, or 'foul brood,' though it would seem to originate in the brood, is, I am inclined to believe, propagated in a variety of ways by the inmates of the hive. The disease is, perhaps, a form of *Septicæmia*, a condition of altered blood-plasma, or corpuscle, or both, commonly known as blood-poisoning, and I scarcely think 'primarily' due to *microbes* or *bacilli*, beyond the fact that micro-organisms become vehicles of transmission, or carriers, and probably also intensifiers, of the disease.

The *bacilli alvei*, which seem to be regarded by your contributors as the specific causes of the affliction, and I write only with a very imperfect knowledge indeed of what has been said on the subject, are, I imagine, but proximate causes, and simply media of infection, the poison itself being degenerate bioplasm, or degraded particles of living matter, which may appear *de novo* whenever and wherever adverse surroundings are sufficiently potent to occasion it.

In such retrograde matter microscopic *bacilli* constantly luxuriate, and though all forms of healthy life would

appear everywhere interpenetrated by such microbes or their spores, awaiting, as it were, the moment of action, yet the special mission of these microscopic creatures is apparently to reduce organic substances to their primitive elements, and in this way prepare pabulum in a convenient form for the development of higher life. In the discharge of this mission they are instrumental in disintegrating not only organisms in which life has ceased entirely, but they multiply in the tissues of animals and plants, the moment vital energy falls below par or disease sets in. Hereupon they develope, and with the sinking powers of the individual through failing life, they grow and flourish in countless multitudes, and continue to do so as long as these conditions exist, which alone support their activity. As all the *Bacteriaceæ*, one division of which is known as *bacillus*, in the course of their life-history assume different forms *possibly according to the nature of their pabulum*, or from other causes, so it would appear next to impossible to pronounce anything definite concerning them, much less to classify them until more is known concerning them. I would not, however, have it supposed that I desire to speak *ex cathedrâ* in this matter.

I am here tempted to repeat a few remarks written some time ago in reference to the diseases of bees, but not published, which may be omitted or not at your discretion.

Among the very few maladies which my experience has taught me afflict bees in a state of domestication, though I have never yet witnessed a case in the Colony, none, perhaps, is more easy of prevention than so-called *dysentery*.

Bees at all times suffer when exposed to dampness, and in their wild state instinctively avoid damp as well as noisome situations. Their hives, therefore, should always be placed in a dry and well-sheltered locality, and be thoroughly ventilated without being cold. This will prevent any moisture from accumulating through evaporation from the unsealed honey and from the bodies of the bees themselves, which might be the case where the surrounding atmosphere was damp, the stock weak, and the hive badly constructed. On no account should sugar-water be given them, but either candy, barley sugar, or preferably pure honey, and these latter only when food is actually needed, a circumstance which should be very rare indeed under judicious management. Unless these little matters, to counteract dampness, are carefully attended to, and the hive is kept dry and comfortable, the bees are apt to get disgusted, and as soon as the brood have left the cells, to seek some other habitation more to their liking.

Not unfrequently, through neglect of such precautions, where the season is damp, or through improper food, or fresh-gathered honey, which is apt to ferment in the stomach and cause distension, a severe diarrhœa or dysentery overtakes them, and the hive and combs become covered with dark offensive excrement, which has thus a tendency to aggravate the disease. The bees are soon scarcely able to help themselves, and wear a weak and unsightly appearance and die in great numbers. The best remedy, perhaps, is to give them a thoroughly clean hive with fresh sealed comb (breaking the seals), and place them on a new and dry site, worrying them as little as may be, until the purging ceases and they rally. They may then be rehabilitated and started afresh with everything pure. The old hive should be thoroughly washed with carbolic soap, and when dry fumigated, if necessary, with sulphur in a closed box.—J. W. Stroud, M.D., *Port Elizabeth, S. Africa.*

(To be continued.)

Swanmore Bee-keepers' Society.—The first annual meeting of this Society was held on October 24, at Swanmore Vicarage. A most satisfactory account of the year's work was given, both financially and in competition, the members of the club having taken sixteen prizes and the silver medal of the B. B. K. A.

Review.

Foul Brood, its Management and Cure. By D. A. Jones, Beeton, Ontario, Canada.

In this little pamphlet the author, who is well known as one of the largest and most advanced bee-keepers in Canada, gives his experience of the treatment of foul brood by the starvation method. In his introductory remarks Mr. Jones says that 'much has been written and said on the matter.' This is quite true, and perhaps more has been written and said on this very method of treating foul brood than on any other. As far back as 1767 we find J. G. Seydel, and in 1775 J. C. Voight, recommending a similar treatment. Then still later, in 1789, we find Bonner, and in 1790 Della-Rocca, both practising it, and Quinby, in 1865, in his *Mysteries of Bee-keeping Explained*, gives it as the only effectual cure. Since that time to the present the same remedy, with very little variation, has been recommended over and over again. Although we have very little that is new to learn in the method, the pamphlet contains several interesting paragraphs which describe the appearance of brood dead from different causes. They are headed, Chilled brood, Neglected brood, Over-heated brood, Drowned brood, Dead larvæ or brood, and lastly Foul brood. The descriptions are so clear that even a novice can distinguish between any forms of dead brood and true foul brood. Of chilled brood he says, 'The appearance of this chilled brood, however, differs materially from that of foul brood; the larvæ are frequently found dead in all stages, from the egg to the perfectly-formed bee just ready to gnaw out,' also, 'that bees, almost fully developed, are found dead in the cells, retaining their shape and appearance, never sink back into that brown ropy matter which so plainly marks *pure foul brood*.' Of drowned brood, he says that it occurs when colonies are placed on low ground, and when a sudden rise in the water overflows the bank of the stream and the apiary is submerged. This brood differs from chilled brood, and, if not removed, becomes much more loathsome and sometimes turns, he says, to foul brood, or to 'what looks and acts so much like it that it must be at least a first cousin to it.' He relates an instance of a man having 100 perfectly healthy colonies submerged during the months of August and September, and a large quantity of brood was drowned. The weather after this flood was warm and muggy, and all the colonies from which the dead brood was not removed became badly diseased. Salicylic acid and other remedies failed to cure, and Mr. Jones concludes that spores of the disease were in the honey, and states that 'Honey from the combs, when given to a healthy colony, produced the disease.' He believes that 'some diseases are started *de novo spontaneous*' (?), a belief that we do not share, as experiments by Tyndall and others have shown conclusively that there is no such thing as spontaneous generation, and that disease-germs must exist before they can be propagated. In describing foul brood the author says that it 'is a disease *in the honey*, or rather that is where it appears to lurk.' We confess that even under a powerful microscope, with a 1/5th oil immersion objective, we have never been able to detect the spores of foul brood in honey, nor has Mr. Cheshire; and although honey has usually been supposed to be the medium through which foul brood has been propagated, we are not prepared to endorse the opinion that it is the only way. Mr. Jones says 'that combs containing foul brood cannot be used, at least I have never been able to use them; no amount of doctoring that I could do would disinfect them.' He says freezing even at as low a temperature as 35 below zero did not kill the spores, and combs and honey after this freezing, when given to a hive, produced the disease, and warns bee-keepers never to attempt a cure by that method. Boiling

the honey, however, for a few minutes, he says, failed to transmit the disease, and concluded by saying that, 'after many trials, I proved beyond doubt that heat *will* kill the germs by which the disease is generated.' To understand the error of this reasoning it is necessary to know something of the nature of the disease. In 1874, Dr. Cohn, than whom there is no greater authority, and whose classification of bacteria has generally been adopted, first pointed out that foul brood was caused by a *bacillus*, and subsequently Professor Schönfield and others, as well as the recent experiments of Mr. Cheshire, have conclusively corroborated Dr. Cohn's statement. Now we know that freezing destroys most bacteria, *except* the spores of bacilli which, according to Dr. Klein, survive exposure to as low a temperature as – 15° C., but that no spores survive a temperature of 120° C., so that we can quite believe that at an ordinary Canadian winter temperature the spores still survive. On the same authority we also know that most bacteria are killed if they are exposed for several hours to a temperature below 50° to 60° C. But here again the exceptions are the spores of bacilli, which require, according to Dr. Cohn, an exposure to the heat of boiling water for as much as half an hour before they are destroyed. Therefore ordinary boiling for a few minutes, as recommended by Mr. Jones, does not destroy the spores. We have no doubt that, in the hands of such an experienced bee-keeper as the author this method has proved sufficiently satisfactory, and it is certainly an improvement on cremation or total destruction of bees, hives, and combs, which Mr. Jones, having paid dearly for the experience, so severely condemns, having, if our memory does not deceive us, when foul brood first appeared in his apiary, sacrificed two or three hundred stocks in this way. But we would go a step further and save not only bees, but also combs and hives. Knowing as we do that the disease is caused by bacilli, we have simply to destroy these or prevent their development. Cold and heat will not do it, but salicylic acid, thymol, phenol, &c., prevent, even in great dilution, the growth of the micro-organisms, and practical experience has proved that by using them we can save whole colonies. We have known large apiaries, where foul brood was raging fearfully, cured entirely by means of salicylic-acid fumigation according to Hilbert's plan in one season with much less trouble than any process of starvation could have done. Phenol, likewise, first recommended by Prof. Butleroff in 1874, and subsequently by Gravenhorst, and latterly by Cheshire, has also been proved to cure the disease. In face of these facts we cannot counsel our readers even to destroy the combs. In the last paragraph Mr. Jones recommends fasting, and describes his *modus operandi*.

His method is to shake the bees from the combs of the infected hive into an empty box, and to place a wire screen over the top, to close the entrance, and then carry them to some dark repository (a cellar if possible), turning the box on one side so as to have the screen at the side to allow the air to pass through. Darkness and a cool temperature are important, as also that all the bees should be equally filled with honey. They are to remain in the dark repository until they show signs of hunger. This they will do in from four to six days, and they must be carefully watched three times a-day after the third day, or they are liable to die very quickly. When sufficiently starved, which is known by some of them dropping down and crawling about in a slow, quiet manner, they are shaken in front of a hive prepared with some combs, and are allowed to run in just the same as a swarm. If there is no food in the combs they should be fed. The combs of infected hives should be melted into wax, and hives and frames boiled for a few minutes. The honey should also be extracted and boiled for a few seconds, and can then be given to the bees. The author further says he has never known the disease to be contracted by either queen or drones. Mr. Cheshire, however, has found both, as well as the workers, to contain bacilli; and Hilbert in 1876, at the meeting of the German National Bee-keepers' Association held at Strasburg, in describing his method of treatment, stated that bees and queens exposed to the vapours of foul brood contracted the disease, and that the fungus (*i.e.* bacillus) of foul brood could generate in the body of the bee. Even the ovaries of the queen have become infected. In twenty-five hives treated by Hilbert he found three such queens. We have ourselves found the juices of workers, when examined under a high power of the microscope, teeming with bacilli. We, however, recommend the pamphlet to our readers. It is written in a pleasant style by one of the most able bee-keepers in Canada; and they will find in it much to instruct, more especially the paragraphs describing the different appearances of brood dead from various causes. We thoroughly sympathise with his concluding remarks, that 'Destroying colonies afflicted with foul brood by fire, or otherwise, we consider a wanton destruction of property.'

Echoes from the Hives.

Torquay, November 9th.—This has, on the whole, been a good season here, though the weather was bad, and the bees did not go out much when the fruit-trees were in blossom. But the clover and lime were good, and the bees worked busily. After July the hives were comparatively idle, as we have no heather within reach. The last two or three fine days, I have noticed the bees carrying pollen into each of my hives. But the weather is colder to-day, and they are wisely keeping in.—R. P. Kitson.

Harborne, near Birmingham.—On November 1st my bees were taking in a quantity of pollen of a reddish hue, from chrysanthemum flowers I expect, and have also collected a great quantity from balsams, also honey I hope. One of my hives, the best I had, killed their queen as late as September and reared a young one, which was mated all right about the middle of that month, and has since laid a few eggs. I noticed they kept the old queen alive till the young one was mated, and then starved her to death. I am very pleased to see the *Journal* is going to be published weekly, it will be a great boon, especially to beginners. I remember how I used almost to count the days between each number, and a fortnight is a long time to an enthusiastic bee-keeper.—Lordswood.

NOTICES TO CORRESPONDENTS & INQUIRERS.

T. N.—1. *Largest Harvest of Extracted Honey.*—The doubling system gives the largest results. Twelve frames in the lower hive, and twelve in the upper, would, if you have a queen vigorous enough to keep up the population, give a large harvest. 2. *Single or Double-walled Hives.*—We certainly prefer double-walls. 3. *Honey-ripener.*—Used in conjunction with the doubling system it enables honey to be extracted more often, and relieves the bees of much labour in evaporating down and sealing. We cannot but think, however, that the heat applied must, to a certain extent, injure the aroma upon which the value of honey so much depends. 4. *Uniting at the Present Season.*—Bring the two stocks to be united together by a yard at a time. Crowd the bees of the weak lot on to as few frames as possible. Open the hive which is to receive the other, separate the frames with as little disturbance as possible.

Bee-Neglector.—1. *Willesden Cardboard for Separators and for Quilts.*—Although it contains copper, it would not be likely to poison bees, as when they nibble away

any substance it does not enter the mouth. They have been found to nibble this cardboard away, and most likely would do so if it were used for separators. It is too stiff and unyielding for a quilt; the propolisation between it and the frames would be great. 2. *The Stewarton Hive.*—You cannot have a better tractate on the Stewarton hive than Dr. Bartrum's *The Stewarton: the Hive for the Busy Man.* It gives in a concise form, and in a lucid manner, the history of the hive and the advantages derivable from its use. The Carr-Stewarton hive is a combination of the Stewarton hive and that of Mr. Carr, of Clayton Bridge, Manchester. The Carr-Stewarton hive is fifteen inches square, and consists of two body-boxes, each being six inches deep, and a honey-box four inches deep. Descriptions of it may be found in the early volumes of the *Journal.* It found a warm advocate in Mr. C. W. Smith, of Totteridge, Herts.

H. G. M.—*Substitute for Tea.*—We do not think it probable that the substitute for tea recommended in the Canadian Honey Leaflet has as yet found its way into this country, but we hope it may; possibly some of it may be exhibited in the coming Indian and Colonial Exhibition. 2. Buckwheat honey is the produce of the blossoms of buckwheat. The silver-hull buckwheat is the best, being very productive. It is cultivated extensively for its varied uses in France, Germany, and America. It is generally so sown as to keep the bees employed on it till the arrival of frost.

C. W. H.—*Price of Beeswax.*—1. This depends upon whether you sell it to a dealer or to a consumer. Good beeswax should fetch, wholesale, 1*s.* 3*d.* to 1*s.* 4*d.* per lb.; the retail price is generally 1½*d.* per oz., or 2*s.* per lb. 2. *Hydromel.*—You can make any quantity you wish, proportioning your materials to the size of your cask. See back numbers of *Journal* for instructions. 3. *Recipes where Wax is an Ingredient.*—(1.) *Furniture Polish.*—1 oz. of white wax; 1 oz. of Naples soap; 1 pint of turpentine; 1 pint of soft boiled water. Boil the water; let it get cold; shred the wax and soap into it; stand it in the oven until all is melted; add the turpentine slowly, stirring as it is dropped in; stir it until cold; bottle and cork it tightly. It is fit to use the next day. (2.) *Furniture Paste.*—3 oz. of common beeswax; 1 oz. of white wax; 1 oz. of curd soap; 1 pint of turpentine; 1 pint of boiled water. Mix the ingredients together, adding the water when cold. Shake the mixture frequently in the bottle, and do not use it for forty-eight hours after it is made. It should be applied with a piece of flannel; the furniture polished with a duster, and then with an old silk rubber.

Virtuoso.—*Hives, Uniting, Feeding, &c.*—1. Opinions vary respecting the best wood for hives. Pine is more durable than deal, indeed, almost as durable as oak. But hives of good sound deal, if the outer walls or cases are painted, will last a lifetime. We have now in use hives made of deal twenty years ago, by the late Mr. Pettitt of Dover, as sound as the day they were made, which have always been in use and have never been painted. These hives, however, have a rough outer case of deal which is rendered weather-proof by a thick coating of tar. We are inclined to think, therefore, that it is immaterial whether pine or deal is used if the hives are well protected. 2. The union and feeding of your stocks should have been performed a month earlier. If you think they have not sufficient stores to last till February, give candy or barley-sugar at the bottom of your skeps, as they are not combed down to the floor-board, and on fine days the bees will descend and feed. Do not give syrup in any shape before spring. 3. The use of vinegar in syrup is to prevent granulation. Tartaric acid is preferable. We imagine you have used vinegar too freely. See Mr. Cowan's recipe in his *Guide Book*, page 151.

W. C. James.—*Extracted Combs.*—All combs from which the honey has been extracted should be returned to the hives to be cleaned by the bees. This should be done immediately after extracting, when the bees will clean and polish the combs in, at most, a couple of days, and render them in excellent condition for storing until another season. Extracting honey and giving back combs should be completed by the end of September, or not later than the first week in October. At this time it would be worse than useless either to place the partially extracted combs—clammy with heather-honey, pollen, &c.—in the hives or in a 'corner of the garden.' The best course to pursue will be to melt them down. By no means disturb your hives which are packed for winter.

A. W. Wallace.—1. The usual signal for swarming is the sealing over of a queen-cell, which takes place on the ninth day from the laying of the egg. On the sixth or seventh day after the sealing the young queen issues, and, weather permitting, she is fecundated from the fifth to the tenth day of her age. 2. The general rule for opening hives is do it at any time during the day, when there is no fear of robbing, but in spring and autumn, when bees are flying freely and little or no honey is coming in—just the time when robbing prevails—manipulate hives in early morning or late evening—before and after the flying time of the bees. 3. Honey keeps well in tins, as a rule. (See communication from Mr. Hehner, p. 363.) Greater part of the Californian honey is hermetically sealed in tins, and we have never heard of any ill effects arising. 4. Directions for spreading brood are fully given on pp. 101 and 154 of *Cowan's Guide.* The time for doing it depends upon the state of the weather and the strength of the colony. Generally speaking these conditions do not occur before the middle of April in this country. Uncapping honey stimulates breeding. 5. The teaching of apiculture in our schools has been exhaustively treated in a paper on 'Bee-keeping in its Educational Aspect,' read at the quarterly meeting of the B. B. K. A. on July 23rd, 1885, by the Rev. F. G. Jenyns, and published in our columns. We do not agree with your suggestion as to the place which the editor's name should occupy.

S. K.—*Drones flying at this Season.*—It is certainly remarkable that drones should exist at this season in a stock in which you saw the queen and worker brood when closing for the winter. That being so you need not fear queenlessness. No doubt one of the lots of condemned bees which were united to make up the 7 lbs. was queenless and contained drones, but why they have been allowed to exist until now is a mystery. 2. The sample of honey forwarded has been gathered from legitimate sources; its taste would suggest mignonette.

J. B. S.—1. *Keeping bees at a distance.*—You had certainly better keep bar-frame hives than skeps, as you will be more able to control swarming, and therefore less likely to lose swarms during your absence. 2. *Feeders.*—You will find the dry sugar system of feeding, which only requires attention about once a week or even less often, the most suitable. Simmins's Champion Feeders might serve your purpose. 3. *Transferring.* The best time is twenty-one days after swarming, when there is no brood to damage, but you may do it, with care, at any time when the weather is warm enough. Be careful not to get the brood chilled, and keep it away from the bees as short a time as possible. 4. *Broad-shouldered frames.*—These broad-shouldered frames find much acceptance with bee-keepers. One objection to them is, that the shoulder being on one

side only of the frame, all the division boards and the fronts of the hives must have recesses ⅜ inch deep cut to receive the shoulders. If shoulders are used, it is preferable to have them on each side. 5. *Smoke.*—It is not absolutely injurious to bees, but you should accustom yourself to use as little as possible. The more carefully you handle the bees the less smoke you require.

Rev. W. E. Burkitt.—*Paper Preservative.*—This is paper impregnated with an impure carbolic acid. If used for lining hives the bees would most likely nibble it away, and moreover the small amount of acid would soon evaporate. We do not think it would be a preventative of either moth or *Bacillus alvei.* Washing the interior of the hives with a weak solution of carbolic acid would be preferable. If placed between woollen quilts, it would, being impervious, confine the vapour and render the quilts damp. For wrapping combs in, to preserve them from moth, it might do; but if the combs are kept in a dry place and a piece of camphor put into the box containing them, they will not be attacked by moth, and we should prefer that plan to using the paper.

Bee in his Bonnet.—1. *Abbott's Observatory Hive.*—You will find this fully described and illustrated in Vol. vii. pp. 133 and 134. 2. *Size of Sections to Adopt.*—We should advise 4½ × 4½ in preference to any other shape. 3. *Number of Frames for a Stock.*—This varies according to the vigour of the queen, the season, and the locality. Some queens will keep twelve or more frames filled with brood, others will hardly supply eight. In the suburban locality from which you date, ten frames will be as many as you can reasonably expect a good queen to keep going. 4. *Preventing Swarming by Queen-Excluder.*—If the queen is confined by excluder, no swarming can take place. If the bees issue, they will return, having no queen with them. Drones will, of course, be confined, if produced, but the included combs should consist entirely of worker-cells. Queen-cells must be cut out. Young queens are often small enough to pass excluder, and therefore if allowed to hatch may lead off a swarm. 5. *American Cloth.*—The object in using this is, that being impervious, it confines the vapour, and so renders the atmosphere of the hive moist and warm, as it should be when brood is being reared. When dry-sugar feeding is practised, it is also useful to condense moisture to be used by the bees to liquefy the sugar. 6. *Wintering on Sugar Syrup.*—Bees winter equally as well on syrup as on honey, and as, at the present price of sugar, syrup costs 2*d.* per lb., it pays to extract honey and feed on syrup. 7. *Crystallisation of Syrup.*—By using cream of tartar instead of vinegar, crystallisation of syrup, made with five, or even six pounds of sugar to the quart, may be prevented. The sample of candy you sent was darkened in boiling down, which gave it the appearance of having been made from raw sugar. To use syrup for candy-making, add more sugar to it, so as to avoid such prolonged boiling.

M., *Rathdrumond.*—*Sale of Swarm.*—1. Under the circumstances, as you state them, the seller would certainly be liable, but unless you had stipulated that safe delivery should be guaranteed, so great is the uncertainty of the law, and so ignorant are juries on subjects of apiculture, that we should not advise to commence an action before consulting a solicitor. 2. Eggs are secured at the bases of the cells by a glutinous substance so that inversion would not cause them to fall. For 'Inverted Frames' see 'Useful Hints,' p. 365.

A Beginner.—*Hives for Extracting.*—*Doubling.*—1. Hives for doubling should have the top bars of their frames flush with the sides. The bottom bars of the frames should have a ¼ inch space beneath them. For applying excluder-zinc between two hives, a light frame, exactly fitting the size of the hive, ¼ inch thick, should be made, and on one side of this the zinc should be tacked. When this frame is placed between two hives, such as described above, a ¼-inch space on each side of it will be secured, and this is usually considered sufficient to enable the bees to work freely through the interstices of the zinc. 2. A plain hive, as described above, containing twelve standard-frames in a good county, or ten in a poor one. There should be no flanges or mouldings—no adornment—but each hive must be exactly of the same dimensions and must correspond in every respect so as to be thoroughly interchangeable. 3. Use flat-bottomed wired foundation in which a vertical wire is fixed at a distance of every two inches, and you will have no twisting or falling. Fill your frames, leaving only ¼-inch space round the bottom and sides, and let the foundation into the saw-cut in the top-bar.

Several Communications and Queries have been received too late to be attended to in this Number. Mr. Garratt, on Increase Stocks, will be inserted in our next. We desire to return our sincere thanks for the many kind encouraging words as to our proposed Weekly Issue.

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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

[No. 183. VOL. XIII.] NOVEMBER 15, 1885. [PUBLISHED FORTNIGHTLY.]

Editorial, Notices, &c.

REVERSING FRAMES AND HIVES.

One of the questions which is at present agitating the minds of bee-keepers is that of the advisability of reversing the combs in a hive. Although the idea of reversing hives is not new, the practice, we believe, is confined almost exclusively to the bee-keepers in Gatinais, a province in France, where the honey flow is of very short duration, and where, by reversing the hives, they obtain enormous harvests of honey. The system was fully described in *L'Apiculteur*, in 1858, by M. Hamet, and later in the German-Hanoverian *Central-blatt* of 1st September, 1874, by Mr. L. Pellence. As many of our readers are not able to get access to Vol. III. of *B. B. J.* we reproduce the translation which appeared in that volume on the 1st March, 1876.

'The masterpiece of bee-keepers in "Gatinais" is to have very strong and populous hives, as early as the honey glut takes place. When the Esparsette (*Onobrychis Sativa*, or *Hydysarum Onobrychis*) blooms, they turn their hives (straw skeps) upside down, so that the crown stands upon the floor-board, the open part uppermost. Upon this open, they place perforated sheet-iron (No. 35), and upon that a second hive, already partly built up, with empty comb.

'The holes of the sheet-iron allow only worker-bees to pass; it is therefore evident that the bees soon fill with extra fine honey, the upper hive, which has already clean new comb in it, so that they have not much hard work to perform. To prevent the queen leaving the lower hive, and to ascend into the upper one, the sheet-iron is left about three inches projecting outside the entrances of the two hives. All bees returning home from the fields, laden with honey, ascend into the upper hive and go into the entrance of this hive, whilst those that nurse the brood enter the lower entrance, whilst the queen, feeling quite comfortable in the midst of her young descendants, does not attempt to escape.

'As the lower hive has been turned bottom up, all the cells have now a downward inclination in it, viz., reversed, of course, and in these downwards-turned cells, the queen does not deposit any eggs, so that in the shortest time, all the bees are gathering, which increases the weight of honey stored materially.

'When the top hive is filled with honey, which in a good season is possible in about a fortnight's time, it is taken away, and the lower one returned into its original position; the queen has not deposited any eggs during the time above referred to, and this original lower hive has now plenty of empty cells vacant for storing the honey still to be gathered. It is also evident that as the season for turning the hives upside down, falls during the best time of breeding, that the number of bees are very materially reduced, the bee-keepers in "Le Gatinais" therefore generally join up to five swarms to get one good, strong hive, and these collect a rich harvest from the clover, &c. &c.; and the latter out of bloom, they are taken first to the buckwheat fields and afterwards to the moors; but these people are always obliged to buy from their neighbours those bees intended for the sulphur pit, to restock and join to their own in autumn, because their numbers have dwindled down during the months of hard work of collecting when they have ceased to increase.'

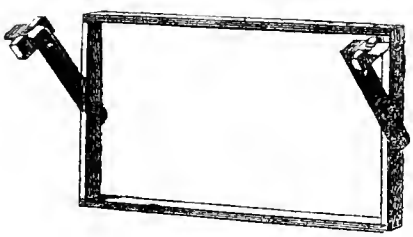
We do not entirely agree with the statement that the queen does not deposit eggs in inverted combs, for we have found by experience that the contrary is the case, and have to look for another reason why in the Gatinais when hives are reversed the queens cease laying. The reason has been suggested by Professor Tseke and M. Toelke, who state that the queen ceases breeding because the worker bees are all, more or less, busy in honey-gathering, therefore mostly in the upper hive, and the nursing bees are so greatly reduced in number.

In the February number of *B. B. J.* of 1876 there appeared an article under the heading 'A New Method of Supering.' The writer stated that in September 1875 he visited the exhibition and manipulation with live bees at Stamford, where he made the acquaintance of the promoter of the exhibition, Mr. J. G. Desborough, who was then a veteran bee-keeper, and had devoted all the leisure of a long life in the study and cultivation of bees. Amongst the many curiosities which were brought under the writer's notice was a skep in an inverted position, its crown resting upon the floor-board, and its adapter and super upon what was originally the bottom of the hive; in other words, the super had been placed on the hive after the latter had been turned bottom upwards. Excellent results were obtained. We were very much struck with this idea of carrying out the Gatinais system in England that we ourselves tried the plan and succeeded in working an excellent super over queen-excluder zinc, which we at that time advocated. Subsequently, on visiting Stamford, we had the opportunity of ourselves seeing this hive of Mr. Desborough's, and having the explanation from him. Mr. Garratt has also in the present number described his success with this method (see page 386).

We believe that the first idea of reversing frames originated with Mr. H. Jenner-Fust, Jun., in the March number of *B. B. J.* for 1876, where he suggests that instead of reversing the whole hive, the central combs only in a bar-frame hive should be reversed, leaving the two outer ones on each side in the ordinary position, so that the bees may store honey in them, and thus avoid the danger of being left without food. Since that time,

until 1881, the subject received very little attention; but in 1881 the advisability of reversing the frames was beginning to be talked about in America. It will be remembered that in January 1882, when the question of a 'Standard' frame was being discussed at a conversazione of the British Bee-keepers' Association, which followed the reading of a paper by the Rev. G. Raynor on 'Bee-houses and Hives,' we mentioned that we had been making experiments with reversible frames, which had been talked of in America. We strongly advised a rectangular frame being adopted in preference to a tapered one in view of the possibility of reversible frames coming into use. The exact words we used are quoted by the writer of 'Useful Hints,' in last number of *B. B. Journal*, page 365.

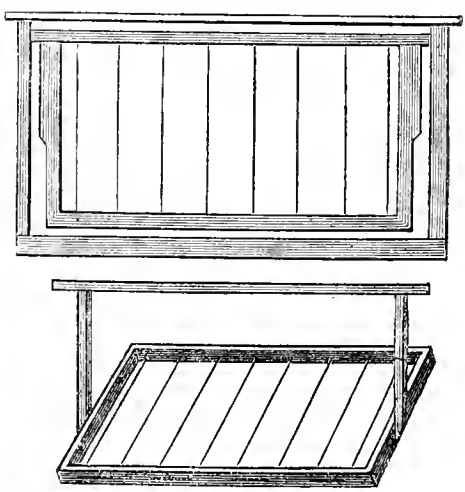
In 1884 a number of devices were illustrated and described in the American journals, one of the best being that of Mr. Baldridge, which was illustrated in the March number of *Gleanings*, and is similar to the one devised by Mr. Neighbour, and described in the *B. B. J.*, on 15th July last. The difference in the two being that Mr. Baldridge has his ends made like Novice's metal corners, whereas Mr. Neighbour adopts the metal ends with projecting shoulders, as will be seen in illustration. Both



NEIGHBOUR'S FRAME.

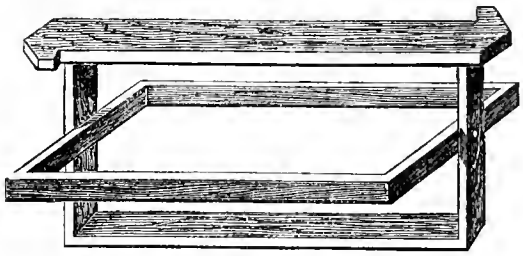
these appliances can be adapted to existing frames—by cutting off the projecting ends of top bars.

On 1st January last Mr. Heddon described his reversible frame in the *American Bee Journal*. It consists of an ordinary frame, having the bottom bar and a portion of the side bars removed; the top bar and enough of the side bars being left to allow a rectangular frame being pivoted to them so that it may revolve, as shown in the illustration.

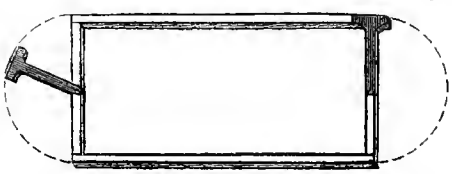


HEDDON'S FRAME.

On the 1st February Messrs. Mason and Buchan described in the *B. B. J.* a very similar frame, for which they took out a patent. The difference being that they make their inner frame revolve in a complete outer frame instead of in three sides like Heddon.*



We do not think either of these two frames practical and advantageous. In the first place we have two frames instead of one, and the cost for frames is consequently doubled; and in the second place—and this is a much more serious objection to them—by having another frame within the present Standard frame it greatly reduces the spaces for comb-building, and the hives would have to be increased if we wished to preserve the present breeding space. Our Standard frame, taking both sides of the comb, has a superficial area of 216 square inches; but if we place another frame within this with bars of even only quarter of an inch in thickness, the superficial area is reduced to 195 square inches, and in a hive of ten frames there would be a loss of 5250 worker-cells. This loss is considerable, and we believe, if reversible frames are ever to come into use, a simpler and a less extravagant device must be employed. We are glad to see that Messrs. Mason and Buchan have not proceeded with their patent, as some of the first reversible frames we tried five years' ago were made in this way, but we gave them up for the reasons we have just stated. If reversible frames are to become general, a simple appliance must be used that will utilise our present frames, and in no way interfere with its size. Two such devices we have mentioned, but the one we think even preferable to either is the one we adopted in 1881, as being the simplest and most convenient. The illustration explains the idea; the ends are made of tin or zinc, and have straps reaching to half way down the side bars, to which they are pivoted.



Last February we received a letter from Mr. J. Hall, and subsequently from Mr. Whittington, who had both hit on the same idea. We have no reason for supposing that either of these gentlemen knew what the other one had devised, or that they knew that we had tried the

* Since writing the above we have received from Mr. C. G. Mason, of Dalkeith, a specimen of the reversible frame which he has been supplying to readers of the *B. B. J.* In this the bottom bar of the outer frames is done away with, and that of the inner rectangle does service for it. He writes: 'The space between inner and outer frame can be used as winter passages; or if thought too much space, it can be partly filled up with a strip of wood in winter.'—Ed.

same plan years ago, so that this is another instance, as in the invention of the moveable-comb hive, of the same idea occurring to different persons at the same time.

Now, having described the various contrivances for reversing frames, we will in our next, turn our attention to the advantages and disadvantages of the system.

(*To be continued.*)

USEFUL HINTS.

After a fortnight's absence of rain again we have a deluge. Hives are dripping—moisture inside, and alighting boards covered with dead bees and wax chips, which have been extruded by the bees, the weather being sufficiently warm to enable them to descend from their combs, and to perform their duties as scavengers. Assist the bees by removing accumulations from entrances and permitting a free current of air to enter the hives.

Dysentery.—Where there are symptoms of dysentery remove the damp and foul floor-board, and supply its place with a clean-scraped, well-dried warm one, and repeat the operation occasionally during fine weather, with as little disturbance as possible. To our ideas a great desideratum in case of dysentery occurring in the winter months would be found in a floor-board of zinc made, after the fashion of a railway carriage foot-warmer, capable of containing hot water, and exactly fitting the hive. Such an appliance, filled with water, heated to the temperature of, say, 120° Fahr. and placed beneath the hive, on a fine sunny day, or at any time when the air was sufficiently warm to prevent chilling the bees, would entice them forth for flight and evacuation of fæces, and would prove a far more practical and useful proceeding than carrying the hive into a warm room in order to secure a similar result. The entrance would require to be opened to its full extent, or the quilts and coverings of the hive might be removed altogether for a short time until the desired flight was accomplished, when the quilts, thoroughly dried and returned warm, would have a most beneficial effect.

This is a suggested remedy for dysenteric colonies *only*, of which, from the mild, damp weather we are experiencing, and the consequent large consumption of stores, we anticipate a prevalence, especially if severe cold succeeds. Many colonies in warm situations are now breeding, which we do not consider a healthy sign, or perhaps we should say, prognostic of health hereafter.

American New Disease.—During the autumn of the present year, what the American apiarists term a 'new disease,' has made its appearance in that country. It is described in their Bee Journals as follows:—

'About two thousand bees from one hive are badly affected. They are constantly cleaning themselves by rubbing their bodies, legs, and wings. Their abdomens are shining, and the black portions intensely so. They are shrunken and pointed. The dead and dying bees are taken from the hive in a string or path extending six feet from the hive. The first indication was about a quart of dead bees. They have a fine queen, and have preserved their drones.'

To this statement Professor Cook replies:—

'This is just what I have often heard this fall. It seems to me a *new malady*. As yet I cannot suggest any cause, and so, of course, no remedy. Most bee-keepers write me that the affected bees seem *young*, and are black from being bald.'

The editor of the *Apiculturist* remarks:—

'By the above it will be seen that there is no mistake about a *new bee disease*. This new malady is not contagious, and there is little cause for alarm. The worker bees may be seen crawling about the entrance of the hive, and on the alighting-board. The bees do not die off rapidly, but the colony gradually decreases in numbers, and the hive after a while becomes depopulated. The healthy bees continue to do the work of the hive, to gather pollen, and to remove the dead and dying bees.'

Referring back to our bee-lore, we find the late Mr. Woodbury describing a disease—from which his bees suffered in 1861-2, and which he designates 'dropping'—in these terms: 'Symptoms, great enlargement of abdomen, which becomes so distended with watery fluid that the bee is unable to fly, in which state it betakes itself to the floor-board, where, in cold weather, it dies, but in warm weather it wanders from the hive, and falling on the ground, crawls about until it expires. All through the spring, and during the finest summer weather, the ground in front of the hives was perpetually covered with disabled and dying bees, which crawled about in all directions with feeble vibration of their wings. In two instances the queens escaped, and their breeding powers seemed to be stimulated by the presence of the disease, since their fecundity not only overtook the mortality which constantly prevailed, but theirs became two of the strongest stocks in the apiary.'

In another case of the malady the queen, swollen to an enormous degree, perished together with the colony. Eight years afterwards another writer, referring to Mr. Woodbury's case, describes a similar attack amongst his own bees, and mentions in addition that the diseased bees had a 'glistening appearance.'

The only treatment found to be successful by these writers appears to have been the removal of the hive to a short distance, where the bees were shaken off the combs upon a sheet, each comb, as it was cleared of bees, being returned to an empty hive placed upon the original stand. By these means the healthy bees were able to return to their hive, but diseased ones—supposed to be chiefly young bees—perished on the ground, being unable to fly.

In the year 1884 we had a similar experience in our own apiary. An imported Italian queen, in her second year and extremely prolific, led off a large swarm in the early part of July, the colony having previously filled two racks of sections, and being apparently in the healthiest possible condition. The swarm was placed in a frame-hive, which, by the end of the month, was well stored with comb and sealed honey where brood was not deposited; but about the beginning of August symptoms of the above disease began to appear. The colony was working splendidly at the time upon a field of red clover adjoining the apiary, and pollen was daily carried in in large quantities, when numerous bees, to the number of 200 or 300

per day, unable to fly, were noticed crawling over the alighting-board, and covering the ground surrounding the hive. The mortality continued to increase, and finally, about the first week in September the colony with its queen perished. The combs were given to other colonies and were productive of no ill effects. But mark the sequel. Early in February of the present year the parent colony, from which this swarm had issued, located in a distant part of the apiary, headed by a young and most prolific daughter of the above-named queen, began to show signs of the same disease.

The hive was extremely populous—literally full of bees—and the mortality daily increased, although the queen continued breeding freely, and the healthy bees worked with redoubled ardour, until about the middle of March, when we found, upon a close inspection of the hive, that the queen, although ovipositing, was affected by the disease, having lost her pubescence, and assumed that 'glistening,' 'shiny' appearance spoken of above. By this time, the bees had dwindled to such an extent that they barely covered two combs, and the best hive in our apiary, from which we had expected to reap the most bountiful harvest, had now become the worst.

'Heu! Quid facerem?
Quo fletu manes, qua numina voce moverem!'

Suddenly it occurred to us that *Bacillus depilis* (*aut Gaytoni*) was the author of all this mischief, and on reference to page 317 of our vol. xii. the suspicion became a certainty. Immediately we applied Mr. Cheshire's remedy of phenolated syrup, as recommended for foul-brood, having closed up division-boards and removed outside combs. The syrup was freely taken, and soon we had the pleasure of inserting into the brood-nest a frame of empty comb, then another, and another, until the colony attained its former prosperous condition, and the queen resumed her plumage, her bright glossy look, and sprightliness, and the dread mortality gradually ceased. By the third week in May our colony received its first super — soon another was placed beneath it, and in due course fifty-six 1-lb. sections were removed, and by the end of September about 30 lbs. of extracted honey to boot, an abundance of winter store being left for the bees' consumption.

The 'new disease' of America, therefore, and the 'dropsy' of our venerated Woodbury, are surely none other than the *Bacillus depilis* of Mr. Cheshire. And in our case, at least, the disease apparently was transmitted from mother to daughter, and has been entirely eradicated by the phenol remedy, since the colony is now in perfect health, and up to the present time has exhibited no further symptoms of the malady. The disease, in our case, appeared chiefly to attack the young bees, but the brood, before emerging from the cells, seemed healthy. There was no unpleasant odour in the hive, and one decided and well-marked effect of the disease was the extreme irritability of the bees. No other hive in our apiary was attacked.

Sale of Honey.—The remarks in an article in the last issue of our *Journal* that 'the serious fall in the price of honey, especially during the present year, has caused dismay,' is certainly true, and we hear reports from more than one quarter of enthusiasts giving up bee-keeping as unremunerative. Whether 'the trail of the serpent is over Fair Trade, Reciprocity, &c.,' is a disputed point, and one upon which there is room for two opinions. We must, however, deprecate the introduction of politics into the columns of the *Journal*, and this is certainly a question of politics, England standing alone amongst nations in perseveringly maintaining a one-sided system of Free Trade. The products of our colonies—all are agreed—we ought to welcome to our shores, and of these, in the shape of honey, we are likely to have an abundance, judging from the following statement, taken from a Canadian contemporary :—

'Canadian bee-keepers are organizing for the purpose of having a monster display of honey at the Colonial and Indian Exhibition to be held in London next season. A display is desired of such magnitude and so rich in quality that it will attract universal attention and not without an object.

'For some time we have felt the want of a larger market, and we have acted the part of paralytics; we felt the want, knew that our remedy lay in Europe, but, as individuals, we have felt powerless to put forth any effectual efforts to open it. Now we have before us the opportunity of sending our honey free of charge, and probably some one to take care of it, and it is to be hoped no one will lose the opportunity of doing all in their powers to make the enterprise a success. Once let us secure a foothold in England and Germany with our honey, and we can defy these *small, ignorant honey-raisers* who have done so much in the past to injure our market. If we cannot secure a fair remuneration here, we ship, and the result will be an important one. Employment for an unlimited number of colonies (of bees), thereby increasing the wealth of Canada; directly, by the production of honey and bees—indirectly, by an increased yield of clover seed fruits of all kinds, &c., wherever additional bees are kept.'

Certainly it is *high time* that we should teach our people to consume 'honey as food,' seeing that English honey is already a drug in the market, and that we are threatened with inundations of the foreign article at the same time. It would be interesting to know the amount of English honey now in the hands of producers unable to obtain a remunerative price for their produce. We can only hope that our Canadian cousins will abstain from sending us glucose with a 'spice' of comb-honey floating in its centre.

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

A committee meeting was held at 105 Jermyn Street on Wednesday, November 18th. Present: Hon. and Rev. H. Bligh (in the chair), Rev. Dr. Bartrum, the Rev. G. Raynor, the Rev. F. S. Sclater, R. J. Hinton, J. M. Hooker, H. Jones, D. Stewart, W. O'B. Glennie (Treasurer), and the Secretary. Letters were read from Captain Bush, Captain Campbell, and Mr. Walker, regretting their inability to be present. The minutes of

the last meeting were read and confirmed. The finance committee presented their report recommending certain bills for payment, leaving a balance in hand of 5*l.* 16*s.* 2*d.* The secretary was requested to make application for payment of subscriptions in arrears, and all outstanding accounts.

A vote of thanks was accorded to Mr. W. B. Carr, of Higher Bebington, for his kindness in presenting a copy of the Association's certificate, in a neat frame, suitable for hanging in Committee-room.

The MS. of leaflet, *Honey as Food*, was submitted. Resolved that proof copies be sent to each member of the committee.

At the monthly meeting of the British Bee-keepers' Association, held on November 18th, it was resolved that the next Quarterly Conversazione should be held on Wednesday, January 20th, and that subjects for discussion should be invited through the medium of the *British Bee Journal*. It is requested that persons willing to submit subjects for discussion should forward the same to the Secretary if possible before December 16th. The subjects to be discussed will be published in the *British Bee Journal previous to the date of the Conversazione*. Secretaries of County Associations are reminded that motions for discussion at the next quarterly meeting of County Representatives must be sent in on or before Wednesday, December 23rd.

It was resolved to hold the next Quarterly Meeting on January 20th, and the Annual General Meeting of the Members on February 17th, subject to the approval of the President of the Association.

CALEDONIAN APIARIAN SOCIETY.

Minutes of meeting held in McInnes' Temperance Hotel, 12 Hutcheson Street, Glasgow, on Thursday, 22nd October, 1885. Present: Messrs. Sword, E. McNally, J. McNally, Cameron, Nunn, Smith, Young, Paterson, Johnstone, Hutchison, Thompson, Watson, and Bennett.

On the motion of Mr. Bennett, Mr. Sword, of Falkirk, was called to the chair. The Secretary read the minutes of last meeting, which were approved of. The financial statement was then read, showing that the Aberdeen Exhibition was a loss to the Society of 8*l.* 12*s.* 5*d.*

The Secretary said the loss was to be regretted, as it was one of the finest shows we had yet held. Nothing could excel the quality of finished honey-comb that was displayed on the tables, and the wonder was where such quantities had been gathered, seeing that until the middle of June we had little honey-gathering weather.

Mr. Young said the difficulty was in getting the people to come into the show when they found there was sixpence to pay. He hoped that the Dumfries show next year would be as successful as it proved to be in 1878.

The Secretary said the prizes gained at the Aberdeen Show had all been forwarded to the winners, except the Highland Society's two medals, which would be ready in November.

The Dumfries prize schedule was then gone into and revised. Mr. Smith, of Dumfries, was added to the committee.

A discussion thereafter arose regarding the past season. The Secretary said he had made some notes on the past season, which, with the permission of the chairman and the members, he would now read.

Apiarian Notes in Argyllshire during 1885.

The year 1884 was a wretched season all through, little produce being secured, but the hives, when put up for the winter in October, were all in good condition as regards stores, brood, and bees.

January and February being mild, the bees were often on the wing, and, until the crocuses and snowdrops were in bloom, we assisted their pollen-gathering propensities with peas-meal, which they soon discovered, and simply revelled in it.

March was cold and bleak, with occasional heavy falls of snow. Rain fell for nearly twenty-four consecutive hours on the 24th, which did much to retard progress in our apiary, and caused the bees to fall back upon their winter stores. We began stimulating feeding in all the stocks so as to prevent the strong from attacking the weak.

April. We had eighteen fine days. On the 13th, the best day of the season, we transferred into nice clean hives. This is perhaps the greatest satisfaction the bee-keeper has in having his bar-frame hives all interchangeable, for in a few minutes you can remove a whole colony into a new home, examine their state, and reject anything that is not fit to go into their new abode.

May began with cold days and still colder nights, and breeding was greatly retarded.

June began well, and our hopes rose with the thermometer. Although the early part of the year had been bleak and cold, we felt our troubles were all over for the season. Stocks being strong, we only waited now for swarming time. On the 5th, business led me to visit Perthshire, when I availed myself of calling on Mr. Paterson, of Struan, and examining his stocks, which were all in fair condition and had wintered well, those in his favourite plaster-of-Paris hives having remained strongest and began breeding earlier than the others. He was kind enough to accompany me to Blair-Athol, where we spent a happy evening with Messrs. Cameron, Robertson, &c., examining stock and interchanging views on the best methods of wintering, &c. Swarming began towards the end of the month, and continued till well on in July, the difficulty being to keep them from swarming.

July was the finest we have experienced for years, in fact the heat some days was unbearable. With the exception of Glasgow Fair Saturday, which rained from morn till night, I never remember a July like it. Stocks were rapidly doubled, and supers quickly filled. On the 23rd I paid a visit to our mutual friend Mr. Raitt, of Blairgowrie, and found him busily extracting honey. He, too, like other bee-keepers, was in great glee over such a successful honey season. On the 27th I arrived at the show-yard in Aberdeen. At no show, during the ten years we have held exhibitions, have we ever had such a display of beautiful honey, put up in a marketable form, as this one. Such a year as this shows (given the season) that we have men in all parts of our country with abundance of brains capable of conducting the bee-farming or any other industry. Why, then, I again ask, allow the foreigner to supply our markets with either honey or wax? The amount of wax imported into this country, and the sums paid for it, are of such magnitude that it behoves us to see if we do all we can to equalise the trade. In 1882 there were 35,538 cwts., value 126,926*l.* imported, and in 1883, 28,192 cwts., value 97,142*l.* We are not yet in possession of the statistics of 1884-85, but hope to get them by our next meeting. The following are a few notes of honey imported, taken from the *B. B. Journal*:—

	1883.			1884.			1885.		
	£	*s.*	*d.*	£	*s.*	*d.*	£	*s.*	*d.*
January ...	1,612	0	0	2,034	0	0	804	0	0
February ..	2,175	0	0	2,234	0	0	5,385	0	0
March.....	1,535	0	0	2,545	0	0	5,404	0	0
April	1,518	0	0	4,962	0	0	9,939	0	0
May	4,781	0	0	5,245	0	0	9,960	0	0
June	3,534	0	0	15,387	0	0	6,848	0	0
July	7,496	0	0	10,089	0	0	12,116	0	0
	22,651	0	0	42,496	0	0	50,456	0	0

	£	s.	d.	£	s.	d.	£	s.	d.
Brt. fwd.	22,651	0	0	42,496	0	0	30,456	0	0
August ...	6,262	0	0	1,019	0	0	2,331	0	0
September	972	0	0	6,453	0	0			
October ...	725	0	0	5,388	0	0	£52,787	0	0
November.	1,308	0	0	4,272	0	0			
December.	1,200	0	0	2,729	0	0			
	£33,718	0	0	£62,357	0	0			

August. The heather began to bloom early, and hopes were raised for a second harvest. The weather broke about Lammas, and the 12th was a perfect deluge. A cold snap then set in, which lasted till the end of September, and thus the second harvest was doomed. Heather honey has been scarce all over the country, but on the whole it has been a favourable year. Our best stock yielded over 80 lbs., and left the body-boxes with ample supply for the winter. On the 19th they were all out like a day in June, and we again rejoice that they go into winter quarters in splendid condition with plenty of stores to tide them over till next April. I learn that many other bee-keepers have been more successful in different parts of Scotland. As much as 120 to 150 lbs. have been obtained from single hives. This is the more surprising, considering the cold weather we had in the north, frost during every month of the year.

Mr. Cameron rose to propose a hearty vote of thanks to the Secretary for bringing the notes of his apiary before them, which he was sure they were all pleased with. He urged that the members should keep a similar register in their own district during the next twelve months. He was sure a great deal of useful information would be gained, and help in over good work.

A vote of thanks to the Chairman brought the meeting to a close.

[We heartily join in Mr. Cameron's proposition, and we wish other secretaries of Associations would follow the good example set by Mr. Bennett, and send a similar interesting apiarian note of their various districts.—Ed.]

SOUTH AFRICA.

Notes on Bee-Keeping.

(*Continued from p.* 377.)

Of all the evils that can attack a bee establishment, bee pestilence, often known as 'foul brood,' is the most terrible. This disease, in its malignity, so far at least as I am aware, is happily unknown in the Colony. Besides being dreadful in its ravages and most infectious, rapidly spreading from hive to hive, it is very difficult to eradicate. The disease is mostly confined to larva and pupahood, and sets in on the young in their birth-cells.

From being suddenly chilled, or affected with dampness under peculiar conditions, or punished by adverse treatment or unwholesome surroundings, the brood become affected, and speedily perish away to a dark-coloured mass, rotten and sticky, like putrid glue, and emitting a pestilential odour not readily forgotten. As the stench from any offending substance is but part of the decomposing substance itself, its degenerate particles spread and sow the poisonous disease wherever there are eggs or brood to receive the infection; and although the adult bees themselves are not so amenable to contagion, yet they doubtless carry the noxious elements on their legs, mouth-organs, and antennæ, and spread the corrupting malady from cell to cell. Few young bees, therefore, are reared, and worse than all the queen herself, confined to the close and fœtid atmosphere of the hive, and continuing to lay not unfrequently in corrupt cells, contracts probably the disease in her ovaries, and so perpetuates the mischief. Thus the bees from slaving anxiously to subdue the calamity, grow gradually despondent, and, but for timely assistance, collapse.

Some of us well remember how Virgil in his inimitable *Georgics*, after recounting the numerous afflictions of his little favourites amidst their many enemies, briefly refers to their ailments and to his method of cure:—

'Now, inasmuch as Life has burdened bees with the same ills that fall on us, should they by chance be languishing with fell disease, you may at once discover it by symptoms unmistakable. The sick at once change colour, and a squalid leanness makes them look deformed; anon, they bring out from the hive the bodies of the dead, and pay the mournful obsequies; or hooked together by the feet they hang thick-clustering at the door; or tarry all within their close-shut home, through hunger listless, and cramped with numbing cold. Thereon you'll hear a grievous sound,—a long drawn murmuring wail, as when the chilling south wind in the forest howls; or moans with refluent waves the troubled main; or in the closed-up furnace roars the rapid flame.

'In such a strait as this I would advise your kindling sweet-scented gums, and introducing to the bees honey in hollow reeds, coaxing the invalids, and gently wooing them to their familiar food. It will be well to bruise and mix with it the stringent gall-nut, rose-leaves dried, some well-boiled thickened must, or raisins from the Psithian vine, with Attic thyme and heavily-scented centaury. There is, moreover, in the meadows a flower named "starwort" by the husbandmen, the plant of which is easily found, growing a wealth of stems and leaves from a single sod. The centre of the flower is golden, but amidst the numerous petals radiating round there gleams a purple light beneath the darker violet. With wreaths of it the altars of the gods are often decked.

'Its taste is harsh in the mouth. In the close-cropped valleys herdsmen gather it, and also near the streams of winding Mella. Take of this plant the roots, and boil them well in fragrant wine, then serve them to the sickly bees as food, in basketsful close to the entrance of the hive.'

Though the observations of the ancient bee-master and his power of action were necessarily limited by the structure of the hives then used, yet the principles involved in his method of treatment would appear to be sound, and his practice, where disease breaks out, to be still worthy of attention.—J. W. Stroud, M.D. *Port Elizabeth, S. Africa.*

Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of October, 1885, amounted to 3534*l.* [From a private return sent by the Principal Statistical Office, H.M. Customs, to E. H. Bellairs, Wingfield, Christchurch.]

THE INVERTED SKEP SYSTEM.

In part fulfilment of the undertaking given in my name in a previous number of the *Journal*, I have much pleasure in supplying fuller details of my working upon this novel plan, but I regret my inability to make good my complete intention, having been disappointed in getting the necessary block ready in time for producing the promised illustration. However the arrange-

ment being so simple I think it will be understood by the simplest intelligence, in fact, its simplicity is one of the chief excellencies that I claim for it. The notice which you gave to my personal description of the method renders it unnecessary for me to make any explanation of the reasons and object of the experiment. I will, therefore, content myself by placing my *modus operandi* on record plainly and simply, confining myself to the one stock of bees first selected.

The precise date I find upon reference to my hive-card was May 29th; for some time previously the bees had been in such a condition that swarming was to be expected at any moment. The skep was a small one, and of the common kind, having a rounded or convex top; the first thing, therefore, was to prepare a suitable cradle in which it might rest perfectly secure, this was easily accomplished by taking two short lengths of 9 × ⅝ths inch deal, 18 inches long, placing them side by side, and fixing them by nailing a bearer or ledge at both ends: in the centre of this floor a 10-inch circular hole was cut, thus providing the rest or cradle required. The next step was to ascertain the direction in which the combs were built and to fix them by means of two rather broad skewers to prevent their falling over to either side pending their being secured by the bees. The hive being now inverted the adapting board with a centre hole cut out, of the same size as the floor-board, was then put on and a rack of eighteen 1-lb. sections laid thereon. This appearing to make the arrangement complete there remained nothing more to do than to leave the bees to their own resources.

I find I have made a very important omission. It should be stated that after ascertaining the precise position in which the top of the hive would rest in the cradle a flight-hole of about 1 inch square was cut, so that the bees could walk directly in from the floor-board, and the original entrance to the hive was stopped. The hive being in a closed bee-house there was no necessity to provide any super cover or other protection from the weather.

During the next few ensuing days the bees were left quiet, but observation was made that the clusters previously upon the hive melted entirely and rapidly away, and evidently serious work was commenced.

On June 9th an examination of the super was made, and it was found that three sections were filled and the remainder progressing rapidly. Here then at once was the realisation of my anticipations, but I found to my chagrin that the queen had ascended and was appropriating more than one section to maternal purposes. The queen excluder zinc was, of course, at once resorted to, and the queen caught and replaced in the hive; the excluder being placed between the super rack and the adapting board. Subsequent to this the sections were rapidly filled, and, in order to meet the requirements of the bees, another rack of sections was superadded. At the end of the honey season the record showed that thirty-nine 1-lb. sections had been taken and 8 lbs. of honey obtained from those which were left uncompleted.

Upon examining the hive after removing the super I discovered that the bees had attached their combs to the excluder zinc, and it became evident that I had committed a mistake in placing the latter upon, instead of beneath, the adapting board, as upon removing the adapter the combs protruded beyond the bottom of the hive to the extent of the thickness of the board, and prevented the hive from being reinstated in its accustomed position unless the additional length of comb were sacrificed.

Beyond a superficial examination of the stock I have not gone, and so far I can only say that the condition of the bees, both in this and several other hives similarly treated, appears quite normal. The combs which were lengthened out to connect to the adapter were found, as was to be expected, filled with honey; and, judging by the weight of the hive, it appeared amply stored for winter use.

As far as one season's experience justifies me in saying it I believe this method of management has capabilities for profitable bee-keeping far superior to any hitherto adopted with the skep-hive. It yet remains to be seen what its effect upon the bees may be by the time the spring is reached. At the present time the bees seem fairly numerous, and the hives are heavy—presumably with honey. They are, in the several hives, being wintered variously as regards the position of the hive, some remaining inverted and others returned to their original position. If, therefore, their condition in the spring is equal to other stocks, treated in the ordinary way, I shall regard the result as highly satisfactory, and shall adopt the system into the apiary under my management: not in any way to supersede the bar-frame system, for this I hold to be the only really scientific method, but as a simple, economical, and reliable plan. As such I recommend it strongly to the notice of cottagers and those seeking their welfare. To any who may be disposed to try it I would advise caution in choosing the time for commencing, but probably the best time would be when supering is usually started or a little earlier; and I should recommend, until further experience is acquired, that the hive should be reinverted as soon as the honey harvest is over.

Trusting you will pardon me for intruding so much upon your valuable space, and anticipating a favourable reception by intelligent bee-keepers of this narrative of a somewhat crude experiment, but which I believe contains the germs of much practical advantage.—JESSE GARRATT, *Cray Valley Bee Farm, Hockenden, St. Mary Cray, 12th Nov.*, 1885.

REVERSIBLE FRAMES.

When writing on the above subject to the *British Bee Journal* on September 1st, I stated that I would give my future experience in the reversing principle experimented so successfully with this summer. Before taking my trial hive to the hills, I obtained twenty-four 1-lb. sections; and on August 17th I took off sixteen beautifully-finished sections of mixed clover and heather honey. On September 4th I took off other twenty-eight sections of fine heather honey, making the total of sixty-eight 1-lb. sections (not bad for a June swarm in this part of the country). Now I come to what at first sight would appear to be a failure in the reversible principle. On examining this hive I found every frame nearly filled with honey (and these reversed combs), the queen not having more than two or three inches of space on each comb for breeding purposes. The cells which once opened downwards were drawn out or rebuilt in a natural position again for containing the honey. I can only imagine that this was brought about for want of super room; the bees finding they had no available space for storing honey above, converted the reversed cells into a natural form to receive the honey as gathered. On bringing this hive home, I found that the ten frames weighed 51 lbs. 4 ozs., the average being 5 lbs. 2 ozs. per frame. I consider this a loss of 45 lbs. of good heather honey, which loss I believe would not have occurred had I placed a double super on the hive.

I firmly believe that the reversing principle will yet prove to be one of the great advances made in modern bee-keeping. As a proof that the idea is finding favour with many, I may mention the fact that I received 210 applications from bee-keepers in all parts of the United Kingdom for a specimen of the reversible frame I have in use; and from a great number of these I have received letters approving both of the principle, and of the simplicity and working of the frame.

I was pleased to see in the *Journal* for November 1st that Mr. Garratt approves of the principle of reversing,

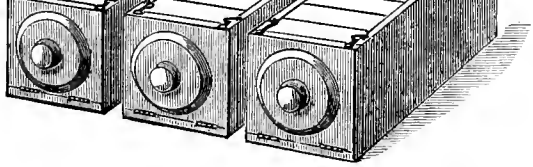
even though it is but the inverted skep. In the *Journal* of November 15th the subject is again broached, I think this time somewhat unfairly. 'Why mention one American journal only when speaking of prominent bee-keepers in the States?' Any reader of *Gleanings* can find the names of at least a dozen prominent apiarists who own in the States of America hundreds of hives worked on the reversible principle. There is one thing that strikes me as being strange, viz., why British bee-keepers are so diffident about giving their opinion on this subject. The question, I think, should be well ventilated this winter.—CHAS. G. MASON, *Lothian Bank, Dalkeith, N.B., November 17th.*

[We shall be pleased to have this question ventilated by British bee-keepers during the coming winter. We give our views in an article in this number (page 381), and also show that the principle of reversion is not new, although recently applied to frame-hives. In the Gatinais it has been carried out as a system for upwards of three quarters of a century, and is still extensively in use there. We do not find the largest honey producers in America adopting reversible frames; although we admit that the craze for them has developed more fully in America than here. We hope they will have a fair trial before they are extensively adopted or finally rejected.—ED.]

RAYNOR DIVISIBLE SECTION RACKS.

On the just principle of *suum cuique* I must ask you, Mr. Editor, for a corner in which to describe my 'Divisible Section Racks,' which, I notice, is being advertised in your columns under other names. In March, 1881, Mr. Neighbour made for me two sets of these racks, one to take 2-lb. sections and the other 1-lb. sections, entirely in accordance with my own ideas and as *my sole invention*, since no rack on this principle had ever been devised up to that time. I used the racks with great success during the summer of '81, and I exhibited two sets made by Messrs. Dines, of Maldon, at the great Annual Exhibition of the B. B. K. A. at South Kensington commencing on July 26th, 1881, which obtained a High Commendation, and to which one of the judges assured me that he should have awarded first prize if the price had placed them within the means of the ordinary bee-keeper.

They were exhibited in Class IX. under my own name, Nos. 56 and 57; and described in the Catalogue as 'Complete in three Racks; to be used as one Rack, or Divisible;' and the accompanying engraving is taken



from a photograph of the original 1-lb. rack so exhibited, and which is still in my possession. Their price, in the Catalogue, was put at 12*s.* each set, which I am aware was far too high, but it was the price charged to me, and they are now produced at half that price, or less. The rack was not registered, and it has now become, as I wish it to be, public property.

The next public appearance of the rack was at the Knightsbridge Show in July, 1883, where Messrs. Abbott obtained for it, under a different name, first prize, their catalogue price being 6*s.*: the only alteration from the original rack being a slight difference in the shutters, and the introduction of a spring to tighten the sections, which I consider no improvement on the moveable end of the original invention. Since that date it has taken, in various hands, perhaps more prizes than any other rack; and very justly so, since, in my opinion, it is, all points considered, the best rack we possess. Messrs. Neighbour, Dines, Meadows, and, I have no doubt, other firms, manufacture the racks, and will, I trust, continue to find a large sale for them.

Messrs. Dines, however, so far as I know, are the only manufacturers who give the honour of the invention to the inventor, by styling the rack 'The Raynor Divisible Section Rack.'—GEORGE RAYNOR, *Hazeleigh Rectory, Nov.* 16.

THE BLIGH COMPETITION AWARDS.

On October 15th you published a list of the judges' awards for the 'Bligh Competition.' May I, as a competitor and prize-taker in the competition, make a short comment on the subject?

I have read the rules very carefully, and as far as I am able to understand the spirit and meaning of the same, I have come to the conclusion that the competition was instituted by the Hon. and Rev. H. Bligh to teach and prove to cottagers that the modern system of bee-keeping was far more profitable than the old antiquated system of straw skeps and sulphur pits, and that the rules were framed after a full discussion in the pages of the *B. B. J.* on lines to encourage the competitors to produce the largest possible quantity of honey, and that I opine is what cottagers have in view when they embark in bee-keeping (they and their fathers before them knew how to produce stock *ad lib.*), and what they want to know is how to make the largest profit on the smallest outlay.

Now, sir, that has been my endeavour during the competition, and the diary, pages 332-5 of *B. B. J.*, show that I was prominently successful in my attempt, yet Mr. T. Owen, with 54 lbs. less honey, is awarded first prize, and I have to play second fiddle, whereas the rules of the competition state that the prizes will be awarded in order of merit to those who shall derive the greatest profit between May, 1884, and August 31st, 1885, presumably the greatest weight and value of honey.

Now, let me show by a very simple calculation the relative proportion of expenses to balance-sheet profits as per tabulated form, page 332, by simply reducing outlay and profits to shillings, thus:—

T. Owen.	W. Woodley.	F. Woodley.
69)283(4	37)294(8 nearly.	41)243(6 nearly.
276	296	246
—	—	—
7		

W. Seabrook.	H. Roberts.	J. Arnold.
45)180(4	50)185(3½	42)175(4
180	175	168
—	—	—
	10	7

Your readers will see by above that my profits were nearly cent per cent more than T. Owen's, and that F. Woodley was nearly fifty per cent more than his. Then I notice Mr. Owen is credited with 10 lbs. more honey in tabulated form than his diary shows.

Then another item of Mr. Owen's diary passes all calculation, and also is beyond my comprehension, viz., the wonderful doings and results of his No. 1 hive, vide page 333 of *B. B. J.* as follows: May 26, put a crate of fourteen sections on No. 1; May 29th, put on another crate of fourteen sections; June 2nd, put on another crate of fourteen sections; June 6th, likely to swarm, he cuts out all queen-cells except one, took old queen and two frames from No. 1, and made new swarm No. 4. Where did the bees come from to work out the foundation

and establish No. 4? Was No. 4 placed on the position of No. 1, and No. 1 moved to a new position? If so I am sorry to have to say the following entry in his diary is an impossibility, *re* the large swarm. No. 1 is now queenless (June 6th), and must remain so till young queen hatches out and fecundation has taken place, consequently there must have been a very large falling off in the population of the hive by the fact of the hive supplying hive No. 4 with bees, and no breeding going on for a week or ten days after the removal of the old queen and the time the young queen began to lay, yet he states in his diary, June 23rd, seventeen days afterwards, that a natural swarm issued from No. 1, weighing 4½ lbs. Incredible! Really, it requires more than the proverbial *granum salis* to swallow such assertions.

I ask observant bee-keepers who are readers of the *B. B. J.* if ever such an extraordinary feat was before accomplished, and if anything approaching it is known, to kindly give us, through the pages of the *B. B. J.*, an account of the same.

When the ponderous swarm of 4½ lbs. of bees, consisting of from 20,000 to 30,000 bees, issued from No. 1 on June 23rd, it must of sheer necessity have been left by the young queen practically void of brood in any stage. Strange that a swarm of that size should have been in No. 1 at that date, and stranger still that she should leave a prosperous colony behind, as later entries show was the case, for we find that by July 1st, a week afterwards, that all the forty-two sections are removed from No. 1. I, with all due deference, submit the above to the judges, and ask them, in justice to myself, to reconsider their awards.—W. Woodley, *World's End, Newbury.*

WINTERING BEES.

I think it well to caution bee-keepers that it is now too late for syrup-feeding. I am feeding the past few winters with bee candy, and find it suits well. I have the candy run off into 4-lb boxes, and have only to place it over cluster by inverting the box. I also cut out top of skep and place it thereon. This candy can be renewed during winter where stocks are wholly destitute of honey. Farmers and farm-labourers should cheer the monotony of their daily labour by keeping a few hives of bees, as the profit from them will help at a time like the present, when every source of income is sorely needed. We had a splendid honey season, and I sold off all—skep at 9*d.* and section at 1*s.*; no difficulty in finding a market, as I built up my own. Plenty of bee-keepers want you to be 'a good fellow,' and sell theirs.—J. Traynor, *Bee-keeper, Tinahely, Co. Wicklow.*

BEE-STINGS.—MOVING BEES.

1. My wife during the summer came down the garden unknown to me to gather nasturtiums while I was manipulating at a hive near. She found a few bees round her, and removed into the kitchen, where one stung her. She ran back to me to relieve her of the bees. Of course she was besieged. I should think I took twenty stings out of the hair of her head, and I had a hot time of it myself. I could not tell whether she would live or die for two or three days. Now, what are the best means to be adopted in a case of emergency like this? She is still nervous if she hears the sound of a bee.

2. I have purchased four stocks of bees in wood hives seventy miles distant, and have requested the lady to let them remain until spring. I am now thinking these hives will be expensive to come by passenger train, so I thought of sending some light boxes similar to swarm-boxes, only with slips of wood fully ⅜ of an inch apart, screwed upright on the sides of the boxes, so remove the frames and bees into the grooves of the boxes to come by passenger train, and let the wood hives come by luggage train. May I ask your advice on the above? Would it hurt to move them home in March, if so I could then feed them?

[1. As your wife suffered from nervous shock, you should have given her sal volatile, about twenty drops in a dessert-spoonful of water, which might have been repeated every half-hour or so till she had taken five or six doses; afterwards less frequently, together with strong beef-tea, and raw eggs beaten up in milk. In severe cases it is best to call in at once that necessary evil—the doctor. 2. You may move the bees as you suggest. Fix in the combs by wire rakes, or stay tape, taking only those which have any brood. It will be better if you nail strips of wood on to the floor-board, so as to fix the bottoms of the frames. You can cover the top with a piece of strainer, and tack two pieces of perforated zinc, about 1½ in. wide, nailing it on to each bar, and bending each piece over the sides of the hive and nailing it. The end of March or early in April would be a suitable time, choosing a warm day, so as not to chill the brood.—Ed.]

DROWNING BEE-HIVES IN THE ANCIENT TIMES.

In reading an account of 'The Scottish Troops under the King of Denmark,' I came across the following incident, related by Munro, an officer of Mackay's regiment:—

'Being quartered a mile from Lauemberg in a dorp, where the boor had quitted his lodgings from fear, we were forced to send our suttler, John Matheson, to that town for provisions. In his absence our boys made use of his rug to cover their faces in drowning of bee-hives. The rug being rough did lodge a number of bees, which, when the boys had drowned the bee-hives, they threw away. The suttler coming late home, we being a-bed, went to rest, and putting off his clothes, drew his rug to cover him; but as soon as the bees found the warmness of his skin, they began to punish him for his long stay; so that he was forced, roaring like a madman, to rise and throw off his rug, not knowing (though well he felt) the smart of his sudden enemies. We called to him, asking if he was mad. He made no answer, but still cried the devil had bewitched him in piercing him in a thousand parts; still rubbing and scratching, crying with pain, not knowing the reason, till a candle was lighted, and seeing the bees, threw his rug in drawwell.'

It would appear from the above that it was the custom to drown bees 250 years ago to get their honey. The campaign here alluded to took place about the year 1626.—Henry Dobbie, *Thickthorn, near Norwich.*

BEES IN TREES.

I see in last *Journal*, dated 15th Nov., notes respecting bees in a tree. We have at the present time, at Ottershaw, three trees occupied by bees. Two swarms have taken up quarters in the white poplar and the other in a very large birch. One, I should think, must be a very strong colony: it has to my knowledge been in its present quarters fourteen years.—A Surrey Bee-keeper.

UNITING BEES WITHOUT THE USE OF SCENTED SYRUP.

As we have all kinds of subjects at this season published in the *Bee Journal*, will you kindly allow me to say a few words on the above subject? As I have succeeded in uniting several lots of bees very successfully, I think it will be of service to others, particularly to those that like to experiment. It having answered so well with me, I think it will be the only

method that I will make use of in the future, as I think scented syrup is often a means of attracting other bees, and causes robbing and fighting, not exactly at the time that it is made use of, but on the following days. I find that it is much better when its use can be dispensed with altogether, there being then nothing to attract the attention of other bees. The following is my mode of procedure:—When I have a stock of driven bees that I wish to unite to a frame hive, I let them remain in the straw skep till the other bees are settled down for the night. Then I open the frame-hive and take out two or three, or as many frames as will be required, and brush the bees off into the hive, and place the beeless combs in behind the division board. When sufficient combs have been taken out, close the bees and combs up with the division board, and leave the back part of the hive open sufficiently to empty the driven bees in: they will then run in among the combs, and very few will take if not put in till close on dusk. Assist them with a feather, and as soon as they are all in among the combs, cover them up with only a very light covering, so that they can get sufficient air. Let them remain till the following evening. The hive is then opened. Slip back the division board to make room for the combs that are to join them; put the combs alternately among the other combs and bees, close up the hive, and all will be well. If frames of brood can be given to the driven bees out of the same hive that they are to be united to, so much the better. As the brood is continually hatching, they become naturally mixed in twenty-four hours. With the same combs and the hatching brood, they have then got the same scent with them. When I wish to unite two frame-hives, I take two that are close neighbours. I lift the frame-hive off the stand, and replace it with a large thin board. A straw hive is put on this, and well propped up at the front to give them plenty of room to run in. Have a good-sized platform in front to brush the bees on to. This can be done during the day. As I get the bees and combs separated, I place them in a comb-box. Any that contain brood is put in behind the dummy (for a few minutes) of the same hive that the bees have to be united. Cover them up to keep the cool air off till there is time to put them in among the other bees and combs. Those should not be given to the driven bees that are to join them, but put in the centre of the hive in place of those removed.—R. PHILIPSON, *Keswick, Cumberland.*

THE COWAN HIVE.

In your *Guide-book* you state, in describing the 'Cowan' hive, that it is made of one-inch pine, and that the sides are rabbeted to receive ends of frame. The rabbets cannot well be more than half-inch, and and this would allow the top bar to be only 15½ inches instead of 17 inches as given for the 'standard' frame. If I have mistaken the direction, will you be so good (if I may trespass on your valuable time) as to correct me? My hives are made on the plan of the 'Cheshire' hive, consequently my frames have a top bar of 16¾ inches.

Now, I propose to make a 'Cowan' hive and a 'Combination' as well, and transfer the frames and bees in the spring. As far as I can at present see, I shall have to reduce the length of the top bars. I am making my new hives early, because I propose to give shortly a lecture on 'Bees; their habits, houses, and honey,' illustrated by diagrams and apparatus.

I shall be glad to have your advice in next *Journal*, if possible. I have begun bee-keeping only this year. I am glad to hear that the *Journal* is to be published weekly, and wish it all the success it deserves.—T. B.

[You are quite right, our top bar is only 15½ inches long. You will see that we use Novice's metal corners, a description of which is given on page 33 of *Guide Book*. There is also an illustration of these corners and part of one of the rabbeted edges given, drawn full size. If you wish to use your frames in a Cowan hive you would have to cut off the ends of top-bar so as to reduce it to 15½ inches, which would leave a projection of three-quarters of an inch at each end. These frames could be used equally as well in the Cheshire or Combination hive. The answer to your other question you will find in 'Notices to Correspondents.'—ED.]

HONEY AS FOOD.

Dr. Bartrum must not, I think, be too hasty in criticising Mr. Griffin's remark in reference to honey not agreeing with some people. I have no doubt Mr. Griffin had good reasons for saying what he did, and I for one can prove the *truth* of his statement, as I have a sister-in-law, who, if she eats the *most pure, genuine,* and *unadulterated English honey*, is almost immediately covered with rash. I have also known other people suffer in various ways from eating *pure honey.*—JAMES ARTHUR KEMPE, *St. Breward Vicarage, Bodmin, Cornwall.*

DRONE AND WORKER-CELLS.

I am pleased to observe that you intend in your next issue to insert a communication from Mr. Garratt 'on inverting skeps.' This communication may throw some light on an interesting problem in apiculture. For many years past I have been endeavouring to ascertain the cause which induces the bees at one time to build worker-cells, and at another time drone-cells; and I have long held the opinion that the air, or the absence of the air, is the factor in the case. Thus, when the cluster of bees in the hive is very dense, and the centre of it is impervious to the air, worker-cells are formed; and that when the bees are diffused, they then feel the effects of the air, and drone-cells are produced. I am in hopes that Mr. Garratt will mention if, in the inverted hives, when the positions of the worker and drone-cells have relatively been changed, the bees will have made any change in those cells, viz., whether the drone-cells at the top of the hive will have been converted into worker-cells, and the worker-cells at the bottom into drone-cells. It would also be interesting to know, assuming that no change is made in the drone-cells at the top of the hive, whether those cells in their original state are used as receptacles for honey; as I believe it is not usual for bees, under ordinary conditions, to use the drone-cells as storehouses, but only for their primary purpose of rearing drones.—W. B. HUNT, *Fryerne, Caterham, November 18th.*

[This new theory of our esteemed correspondent does not agree with our own experience. We have found drone-cells built when there has been a glut of honey and in which only honey was stored as fast as collected, and such cells had never been used for rearing drones. We believe that drone-cells are built both for storing honey and rearing drones, and that they are only constructed when bees experience a need of them for either of these purposes. We recollect an instance where the bees in a straw skep built a semicircular piece of drone-comb six inches in diameter and continued the rest of the comb with worker-cells. These were used for breeding, as was plainly visible by the colour of the cells, but the drone cells remained a pure white and were never used for any other purpose than for storing honey. This comb was right in the centre of the hive and where, according to our correspondent, there would be an absence of air, and the cluster of bees would be very

dense. We would also point out that a cluster of bees can never be so dense as to be impervious to air, or the bees could not exist. They require pure air as much as any human being does, and would speedily perish in the absence of it.—Ed.]

PITCH OF CELLS.

To my surprise I find from the last number of the *Journal*, that most of your correspondents are somewhat in the dark about the inclination or pitch of the cells in both honey and brood-comb; so perhaps the following facts from my own observations may not be without interest.

In the brood-comb the pitch is very slight, the cells being nearly horizontal; and as the cells are short (half-inch only) and mostly worker-size, they do not show the same amount of variation as longer cells and drone-size do, when used merely for honey storing, as in sections. In the latter case I have found cells, the body of which was curved in such a manner that the mouth of the cell was of a totally different pitch to the bottom. If I remember right, I have even had instances of the outer half of the cell being joined to the inner at an obtuse angle which was plainly perceptible.

I have also found three distinct pitches in a $4\frac{1}{2} \times 4$ section; towards the top, and also towards the two sides; such that, if I may say so, the cell-mouths radiated outwards from the centre in every direction, downwards excepted. I can send you instances of this, if you wish; and if, as it appears, it has not been observed before.

I don't know *why* the bees build cells with this outward pitch unless the following be the reason. In working full sheets of foundation, whether in sections or frames, I find the bees secure them at the top and work out the cells in the centre of the sheet first, owing perhaps to the heat at the top being too great. Now it *may* be that they increase the diameter of these centre cells very slightly as they get to the mouth; if so this would at once account for the outward pitch. Accurate measurement would be required to test the correctness of this explanation, which I cannot affirm to, as I have not tested it yet. If it is correct, I think the outward pitch would seldom, if ever, be observed in cases where the bees have had to supply the midrib themselves; but where they have had foundation given them, it would be more common.

In my sections, too, the drone-cells often appear flattened so that the horizontal diameter seems greater than the vertical, when seen from a point at right angles to the comb-face. When seen from above, so as to look down the cells, they seem to be true hexagons. I am rather doubtful as to their correctness in shape. As I said before, drone-comb used for sections shows these points most clearly, but they can be observed even in brood-comb worker-cells as well, though to a very much smaller extent.

Now the foregoing observations appear to me to point to the conclusion that reversing brood-comb does not matter, but that with thick slabs of honey-comb reversing, large pieces would be objectionable if the pitch is very pronounced; inasmuch as I find the bee gives the latter a much greater pitch of set purpose.

In my own apiary I have not tried reverting frames, as mine are not adapted to it; but any small pieces of clean comb available, such as new drone-comb cut out of a frame before being used for breeding I use as starters for sections, and these I place in the boxes any side up so as to give me the most convenient attachment. As I do not have occasion to completely reverse large pieces of full thickness I have no trouble in this way. For those who wish to reverse honey-cells with a pronounced slope, it might be advisable to pare down the comb to half thickness in a few cases.

Have any of your correspondents had a comb with the rows of cells horizontal on one side and vertical on the other? A year or two back I had one, the peculiar part was about the size of my hand. The patch was, I think, horizontal, the rest of the comb, at each side, above and below, being vertical. This was built on foundation I don't know if it is still in existence, if so it is now in one of my hives in actual use. This foundation, I think, had the rows of cells vertical, and it was altered by the bees as not quite suited to their ideas; for, I think, the rows are horizontal in a natural comb. I find that cutting down a brood-comb to the midrib and using as foundation, results in white cell-walls being built on a black midrib, as they do not clear out the cocoons, &c., in such a case, as I had expected.

Referring to Mullenhoff's theory of the origin of the hexagon, quoted on page 7 of the present volume, I find it stated that the bee can only build round cells when occurring singly, as a queen-cell; and that the hexagon is obtained by the equal pressure of each one on the other. Well I thought this correct till the other day taking up Wood's *Homes without Hands*, and reading chapter 30th about the 'Icarias and Raphigasters,' I came on a staggerer; as in the first case, we have isolated cells joined together by one, two, or three sides only, and yet each hexagon is as true, and the angles as sharp as possible. In the second case round cells are joined side by side somewhat after the manner of a wasp's comb.

My own observations hardly bear out the assumed roundness of the cell-wall at the edge of a comb, but these are not sufficient for a decided opinion. However, I think, the involuntary origin of the upward pitch of the cells is sufficiently disproved by what I have previously stated, inasmuch as the bee varies her pitch to serve the varying purposes for which the cell is designed.

As for instinct, or the divine intuition, among animals by virtue of which they *mechanically* do whatever is necessary, and without any mistake or possibility of such, I must frankly confess that, although I am pretty intimately acquainted with certain individual animals, I cannot find a trace of it. So far from it indeed, the better I learn to understand the ways of any animal, the more clearly do I find thought and reason instead. This reason has no conception of abstract ideas, but concrete only, and is more like a young child's intellect in most points and quite as liable to mistakes. I find the bee of a true-blue Tory turn of mind, and unwilling to try new methods of work. Instinct for me means merely habitual and partly involuntary actions. What does 'Woodleigh' mean by it? Till he and his opponent define their meaning they won't get on much, I doubt.

Do bees perspire? In opening some of my colonies when in best condition, I notice at times a sort of oily or greasy appearance; I cannot describe it, but it looks almost as if they did, and yet it seems an absurd idea. Has any one else noticed it?—Student.

[The pitch of brood-cells is generally slightly inclined upwards, from 4 to 5 degrees; drone and honey cells, which vary in size and are longer, are inclined still more in an upward direction; but they do not radiate, as suggested by our correspondent, neither are they flattened. Drone as well as worker cells are hexagons (not flattened), but they may have a flattened appearance if looked at at an angle.—Ed.]

CONDEMNED BEES AND HOW TO MAKE THE BEST OF THEM.

In *British Bee Journal* of August 15th, 1884, under the above heading your correspondent gave a good deal of information as to the treatment of condemned bees,

and also gave his plan of bumping instead of driving. There was an objection made to this plan in *B. B. J.* of September 1st by Mr. G. J. Buller, and that gentleman considered it an error, and condemned the plan altogether, and so did Mr. W. S. Joyce. I considered it a good plan, and, accordingly, tried it last year and found that it answered well in all respects, as your correspondent had stated, as regards time and other advantages. I have not driven a single hive of bees this year, although some have been only casts which have not filled the hive with comb, and then the comb is very tender. If there are sticks in the hive they should be twisted round before being pulled out, and then they will come clean from the crown of the hive. I cannot help thanking F. Lyon for his good instructions, and should like to know if any of your readers have tried the plan, and the result. My advice to all that take condemned bees is to bump, and not drive; and for this reason besides the valuable advantages that F. Lyon gives, you can see if the combs are free from foul-brood, which you cannot do if you drive. This is a great advantage, as a bee-keeper may spoil all the hives he has by bringing home condemned bees that are infected. Those that try the plan can manage it much better without gloves and the stinging is much less than with them. I have taken six of a night without a sting.—H. Jeanes, *Kilmington.*

CURE OF FOUL BROOD BY BRIMSTONE.

I have read with interest in your valuable *Journal* the subject of foul brood and various methods of cure, but I have not seen brimstone mentioned as a means of cure. I had a stock in a bar-frame hive that was beautiful and healthy to the latter end of June, when I found a little foul brood. Not having time to attend to it just then I let it go for a week, when I put a piece of camphor in behind the bars, but at the end of a fortnight, to my disgust, I found it very bad, so I thought I would take the queen away, which I sent to Mr. Cheshire, who could find no trace of disease in her. In about a week's time I inserted two queen-cells, after destroying several in the hive, but I suppose I missed one as the bees tore them both open during the next two days. When I examined the hive a fortnight after I found a young queen, but she had not begun to lay, and the other brood that was alive when I first took queen away had all hatched out, so I shook all the bees off the combs into an empty skep and tied them up. The bars of comb as they were I put back into the hive (eight), four each end of hive; then I took a red flower-pot saucer, with some lighted touchwood, with about 1 oz. of brimstone broken up on top and put in the centre, putting a piece of sheet-iron over the top of bars to prevent the quilt scorching, which I put over all, closing up the hive, thinking of leaving it for forty-eight hours, but to my surprise next morning I found the bees had eaten their way out of the skep through the cloth it was tied up in, and were flying about pretty mad, so I opened the hive, took out the saucer, rearranged the bars, and tossed the bees back into their hive. When about a fortnight later I found brood in all stages with but a few bad to be seen here and there, but at the end of August there was not a trace of foul brood to be seen, all a most pearly white.

If this has not been tried I hope it may be of some value to brother bee-keepers, as it is very simple and the cost, I might say, is almost nothing. I could give numbers of cases where I have been asked to attend to foul-broody stocks when it was too late, they were so weakened.

I have also cured another stock of my own with camphor, that I took at the commencement, by putting a piece of camphor behind the frames wrapped in a piece of calico about the size of a small walnut, and about the same quantity broken up and put on a piece of perforated zinc over the feeding-hole, well covered up. —John Hounsom, *Leigh, Tunbridge, November 16th.*

[We are not surprised to hear that our correspondent has cured foul-brood by burning sulphur (brimstone). It is well known that the product of combustion of sulphur is sulphurous acid gas, and that this is highly destructive to all life. Did we only require to destroy the bacteria in the combs and hives, this sort of fumigation might be admissible, but a very small dose of this gas would destroy also every bee in the hive. The gas has a suffocating odour of burning sulphur and a sour taste, and if breathed even in a diluted state, causes cough and headache, and in a concentrated form it is fatal to life. The liquid acid evaporates with such rapidity at an ordinary temperature as to generate a very great degree of cold capable of freezing mercury. Sulphurous acid arrests fermentation and putrefaction, and is a much more powerful germicide than either salicylic acid, phenol, thymol, or camphor. L. Bucholtz, who has experimented and observed the effect of various substances in destroying the power of reproduction in bacteria, found that a solution of one part sulphurous acid in 666 parts of water was only required, whereas it required of salicylic acid a solution of one in 312, of thymol one in 200, of phenol as much as one in twenty-five. Of these substances it will be seen that sulphurous acid is by far the most powerful, but at the same time it is more dangerous to use. Salicylic acid stands next in order, and is perfectly safe, even in very much larger doses than are necessary for a cure, and when used for fumigation, penetrates every cell and crevice, and even the bodies of the bees. In considering the effect of various substances on the destruction of the bacteria of foul-brood, we must not forget that we have bees in a hive, and also brood in various stages of development, which we wish to preserve, therefore the results of the experiments on the germicidal properties of these substances must be taken with caution. They prove the power to prevent the development of bacteria, but cannot be absorbed in sufficiently large doses to act effectually, and without themselves destroying organic functions. In this instance it seems to us that this must have been a case of disease in the brood only, as the queen was healthy, or most likely there would have been a reappearance of it in the hive. We think that the absence of disease in a queen makes all the difference between an easy and a difficult cure, and we believe constitutes the difference between the two kinds of foul-brood named by Dzierzon and others mild and malignant foul-brood.—Ed.]

INSECT FERTILISATION OF FLOWERS.

The following article is extracted from 'The Text-book of General Botany' by Dr. W. J. Behrens of Gottingen. Translated for the *Popular Science Monthly.* Revised by Patrick Geddes, F.R.S.E.

Of insects the Coleoptera, the Lepidoptera, the Diptera, and the Hymenoptera, are the orders most concerned in the fertilisation of flowers. More rarely, fertilisation is effected by one or other species of Hemiptera, Neuroptera, and Orthoptera, but these are not of sufficient importance to demand further attention here. We shall therefore confine our remarks to the orders constituting the former group, and consider the various physical peculiarities by which insects belonging to them are enabled to effect the end in question. Such peculiarities chiefly take the form of special structures (invariably confined to the head,) by means of which the insects are enabled to reach and abstract the honey contained in the flower. We shall also have to consider the organs concerned in the transport of the pollen.

The order Lepidoptera comprises many species of great importance in effecting the process of fertilisation.

Their large wings are well adapted for rapid flight from flower to flower, and their long proboscis enables them to reach the honey even when the nectary lies at the bottom of a very long and narrow corolla-tube.

The position assumed by the butterflies when engaged in abstracting the honey deserves notice. The wings, which during flight flutter to and fro with a rapid motion, are folded together perpendicularly over the body, in which position they are maintained so long as the insect remains poised on the flower. The butterfly is thus enabled more readily to escape detection by its many enemies (*e. g.* birds) than if, when resting its brilliant wings were outspread. The under surface of the wings is usually of a much less striking colour than the upper, and consequently does not prove so attractive. It even happens in many instances that butterflies only visit such flowers as are of the same colour as their own wings, this precaution, of course, rendering detection extremely difficult. Many blue butterflies show a marked preference for blue meadow flowers, while in the Alps the scarlet lilies and many of the orange-coloured *Compositæ* are visited almost exclusively by butterflies of like hue. The moths, while extracting honey, do not assume a position similar to that of the butterflies, but hover over the flowers, their wings rapidly vibrating meanwhile.

The butterflies are excellent honey-hunters, because, as already said, their proboscis is very highly developed. It arises from the head midway between the eyes, and frequently exceeds the entire body of the insect in length. When not in use, it is kept coiled up like a watch-spring, but can be uncoiled at will, and thrust deep down into the nectary of a flower. The proboscis is hollow, and the honey is sucked up by the extreme tip.

In the butterfly the proboscis is the only part of the mouth that is fully developed. In many insects the mouth is very complicated in structure; but in the butterfly a number of the parts are almost entirely suppressed. The *labial palpi*, however, are usually pretty well marked. They are long and narrow, and are densely covered with hairs. To these hairs the pollen adheres, while the butterfly is engaged in sucking the honey, and by them it is carried to the stigma of the next flower which the insect enters.

The proboscis is usually from three to seven centimetres long, but in many tropical moths it attains a length of over twenty centimetres. It is by the great length of their proboscis that many butterflies are enabled to suck the honey from flowers having very long and narrow corolla-tubes, where it would be quite inaccessible to other insects. We need scarcely say that this feature is a great advantage to the butterfly order, for it means that they have the monopoly of the honey of flowers with a long, tubular corolla. The honey-suckle (*Lonicera Periclymenum*) is a good native example of a flower with a tubular corolla, in which the nectary is so situated as to be beyond the reach of the various bees and butterflies with short proboscides, likely to be attracted by it in the daytime. In this case the honey is entirely reserved for one of the evening moths (*Sphinx ligustri*), which possess a proboscis of almost exactly the same length as the corolla of the flower, *i. e.*, about forty millimetres. Attracted by their fragrance, the insect will hover over a cluster of flowers for a time; finally selecting one, it uncoils its long proboscis, thrusts it deep into the innermost recesses of the corolla, and, at its leisure, sucks the sweets denied to less fortunate members of its kind.

As fertilisers the beetles are not so important as the butterflies and moths. Only a small proportion pay regular visits to flowers, the greater number deriving their food from quite other sources. Many species which do frequent flowers only effect injury, devouring, as they do, some of the most important organs, *e. g.*, the stamens or the ovary. Others, however, and especially those whose small size admits of their creeping into the interior of the flower, frequently promote cross-fertilisation, the viscid pollen adhering to the general surface of their body, from which it is brushed off by the stigma of the next flower they enter. Such flower-beetles as *Anthrenus*, *Meligethes*, *Malachias*, and certain smaller sorts, are extremely useful in this way.

In other species certain parts of the body are specially adapted for obtaining food from flowers. Thus, in the crown-beetle (*Cerocoma Schafferi*) the middle of the antennæ is characterised by very strong and well-defined expansions, and is partly covered with hair. The palpi are very long, and the tongue is provided with two tufts of hair. These form together a large yellow crest on the anterior portion of the head. In midsummer this beetle is occasionally to be met with on the flower of the milfoil and corn marigold. If one of these beetles be caught and examined with a lens, the crest is usually found to be covered with a multitude of little yellow pollen-grains. Among the long-haired beetles the *Lepturidæ* are specially well adapted for procuring food from flowers. The anterior part of the body (head and thorax) is narrow and elongated, so as to enable the insect to push its way pretty deeply into the interior of the flower. The mouth-parts are well developed, and stand straight forward from the head. The labium is usually hairy, and is thus extremely useful in extracting honey.

Compared with the beetles, Diptera or flies take a very prominent position as promoters of cross-fertilisation. One great advantage which they have over the former class is their power of free and rapid motion. While the beetles are almost without exception compelled to adopt a slow mode of locomotion, the movements of the flies are among the most rapid known in the insect world. The number of native species of Diptera is very large; of those which frequent flowers we shall here consider but a few. One of the largest and most rapid flying of the Diptera is the humble-bee fly (*Bombylius major*). In this species the proboscis, which is situated on the anterior portion of the head, is of considerable length, so that the insect can reach the honey even when it is secreted some way down the corolla-tube. The manner in which *Bombylius* hovers over a flower while extracting the honey closely resembles that already described as characteristic of the moths among the Lepidoptera.

The *Empidæ* are easily distinguished by the peculiar formation of the head and proboscis. The latter is not directed forward, but almost perpendicularly downward, and the head itself is round; the whole thus bearing some resemblance to the long-beaked head of a crane. Many of the *Syrphidæ* are also honey-suckers. In structure they resemble the common house-fly more than the Diptera we have just considered. The posterior part of the body is mostly distinguished by a number of bright and dark coloured bands and specks. As typical examples we may mention the large *Syrphus*, the allied *Eristalis tenax* and *arbustorum*, and the cone-fly (*Rhingia rostrata*). The latter may easily be recognised by its peculiar proboscis, which is kept coiled up under a small conical projection on the anterior part of its head. The sucking apparatus of the Diptera consists of a suctorial proboscis, resembling in a general way that of the common house-fly. It is tubular, short and thickened at its extremity, so as to form a disk, upon which are furrows and hairs. It is by means of this disk that the honey is taken up. The proboscis of the Diptera being almost always short and blunt, they can only extract honey from such flowers as have an open corolla. Insects of this order, then, need only be sought for on flat flowers, and there indeed they may be seen on any sunny day, rapidly creeping about, and greedily imbibing the nectar. The *Umbelliferæ* are special favourites with them, the nectar being found on the disk in the centre of

the flower, which can very easily be reached. The Diptera are never found on flowers with long corolla-tubes. Only such forms as the humble-bee flies, *Syrphidæ*, *Empidæ*, and a few others, have a proboscis large enough to enable them to obtain honey from flowers of slightly tubular form. The proboscis of *Bombylius* is about one centimetre long. It is strong and stiff, cleft at the extremity, and thickly beset with hairs. Certain other structures entering into the formation of the mouth (*e.g.* the lip, the mandible, and the maxillæ), almost equal it in length. The cone-fly (*Rhingia rostrata*), in common with many other broad-headed flies, possesses the power of coiling up its proboscis, the length of which is about twelve millimetres. That anterior portion of the cone-fly's head is prolonged forward so as to form a sort of beak. When not in use, the proboscis is kept coiled up beneath this prolongation. When required, the extremity of the proboscis is first inclined downward, and the organ is next suddenly shot out to its full length. When fully extended the proboscis projects far beyond the beak-like anterior portion of the head. The extraction of the honey is effected by means of the cleft tip. The cleft extremity is used in sucking.

We have already seen that many flowers are exclusively visited by Lepidoptera, their honey not being within the reach of insects belonging to any other order. Such, for instance, are honeysuckle and privet. Very few flowers, however, are frequented solely by Diptera; for the length of the proboscis, even in those Diptera, in which it is best developed, is attained, if not surpassed, by many of the Hymenoptera (humble-bees, honey-bees, &c.). The latter class, therefore, share with the Diptera the privilege of frequenting certain species of flowers. We shall now pass on to consider them for a little.

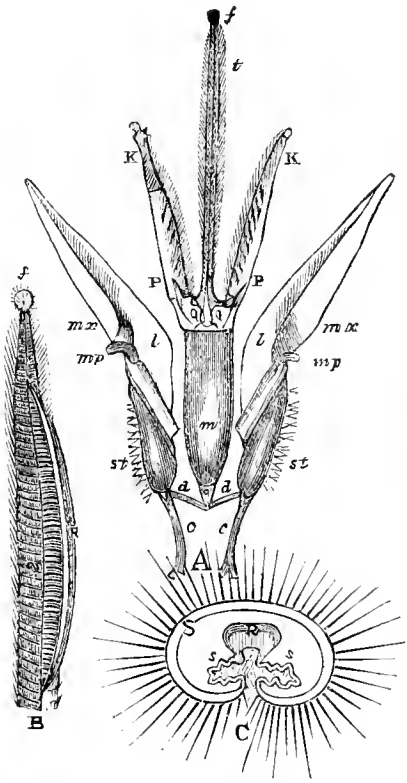
Of all insects the Hymenoptera (Bees and Wasps) are, on account both of their physical structure and their peculiar instincts, the best adapted for the task of extracting and collecting honey from flowers. The species comprised in this order, and more especially the bees, are all characterised by a superior share of intelligence, not only as honey-hunters, but in many other respects. Their mode of living together in large, well-ordered communities, presided over by a queen, has long been a subject of marvel and of study. Out of the wax, which exudes at the joints of the abdominal segments of their bodies, they construct a 'comb,' consisting of a number of united cells. The cells, when finished, are filled with honey or 'bee-bread,' a substance composed of a mixture of honey and pollen. This bee-bread forms the food upon which the young larvæ are reared.

The bees are the greatest promoters of cross-fertilisation, not only among the Hymenoptera, but among all insects whatsoever.

Over two hundred species of our native bees (*Apidæ*) are known as frequenting flowers, the most familiar being the common honey-bee. The task of collecting and storing honey is performed exclusively by the neuters (workers). The humble-bees do not fall far short of the honey-bees in the assiduity with which they frequent flowers, and they surpass the latter in size and in length of proboscis. Our most common species are the earth humble-bee (*Bombus terrestris*), the garden humble-bee (*Bombus hortorum*), the moss-bee (*Bombus muscorum*), and the stone-bee (*Bombus lapidarius*). Very similar to the humble-bees in appearance and structure are the hairy bees. They are readily distinguished, however, as we shall presently see, by the formation of the hind-legs. There is also a sand-bee (*Andrena Schrankella*, a species representing one of the largest genera), which may be seen in early spring on catkins and other spring flowers.

We have already said that, over and above their high intelligence, bees are remarkable for having certain points of their body specially modified in connexion with the acquiring of honey and pollen. We will now further consider the structures concerned in effecting this end, viz., the *suctorial apparatus* and the *apparatus for collecting pollen*.

The suctorial apparatus is in most bees developed in very great perfection. In many the proboscis is of considerable length, in some cases being as long as the body. It consists of the long vermiform tongue (*f*) as in the butterflies), the upper surface of which is mostly well

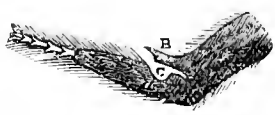


TONGUE OF THE HONEY-BEE.

provided with oblique rows of long bristles. The maxillæ (*l*) and part of the labial palpi (*k*) are modified into flat, leaf-like, linear processes, which are arranged around the tongue (*f*), and thus complete the suctorial proboscis. While, therefore, the suctorial apparatus of the butterfly consists simply of a coiling or suctorial tongue, it must be noted that in the bee other parts are concerned in the formation of the tubular sucking apparatus. In many bees, besides, the tip of the tongue is peculiarly modified, so as to enable the insect to taste the honey before beginning to collect it, an arrangement by which honey of unpleasant taste can be rejected.

APPARATUS FOR COLLECTING POLLEN.

Of all insects the bees alone have certain parts of their body specialised for the collection of pollen. The structures developed for this end are in their way perfect



ANTERIOR LEG OF A WORKER BEE.

They may be found either on the ventral surface of the posterior portion of the body or on the legs. Accordingly, bees may thus be divided into two groups: 1. Bees having structures for the collection of pollen on the ventral surface of the body; and, 2. Bees having such

structures on their legs. To the first group belong the mason-bees (*Osmia*) and the leaf-cutter bees (*Megachile*). In these species the ventral surface of the abdomen is furnished with long, stiff, retroverted hairs, by means of which the pollen is brushed from the anthers as the insect passes in or out of the flower. The grains get entangled among the hairs, from among which the bee afterwards dislodges them by means of its legs.

This contrivance is admirably adapted for obtaining pollen from flowers having a flat corolla, but not for such as have the anthers concealed in a deep tube. Our most highly developed bees (humble-bees, honey-bees, &c.) have, therefore, an apparatus suitable for collecting pollen from flowers of all shapes.

The pollen, once removed from the anthers, is next transferred to the hairs, or to the surface of the tibia, to which, being viscid, it readily adheres. After the process of collecting has been carried on for some time, the pollen forms thick yellow masses, which completely envelope the legs. Laden with the fruits of its toil, the insect wings its way homeward, and deposits them in the bee-hive.

While our native flowers are many of them entirely dependent on insects for the transference of pollen, the process of cross-fertilisation is, in many tropical species, always effected by birds, which visit the flowers on account of their nectar.

In America the humming-birds and in Africa the honey-eaters are the great promoters of cross-fertilisation.

The honey-birds are found in the tropical regions of Africa, Asia, and Australia, while the humming-birds belong to tropical and South America. The former suck the honey with their long tubular tongue, which is brush-like at the tip. Their relations to flowers have not yet been sufficiently investigated, but a good deal is known respecting those of humming-birds.

The humming-birds are small (the largest species attaining to about the size of a swallow, the smallest not much larger than a humble-bee) and of delicate structure. They are famed for their magnificent plumage, which almost always displays metallic tints. Their flight does not resemble that of our native birds, being maintained by rapid vibrations of the wings, which enable them to remain apparently motionless in one spot for a considerable time. Their passage from place to place is effected by a series of rapid darts, almost too swift for the eye to follow. Their flight might perhaps be best compared to that of a moth. Like these insects, the humming-birds hover long over a flower, sipping the honey with their long, thin bill, and in other particulars also—in colour and form, for example—humming-birds and moths offer some remarkable parallels. Representatives of each may be found, to distinguish between which needs a close scrutiny, and which, when on the wing, might perplex the best observer. To all outward appearance the humming-birds are birds when at rest, but insects when in motion.

We thus see that in the tropics there are not only wind and insect-fertilised flowers, as with us, but also certain which are bird-fertilised, *i.e.*, plants in which the transference of the pollen is effected by humming-birds.

Review.

Ptschelovodstvo, posrjastchjaetsja sjelleskim outcshiteljam, by A. Zoubareff, St. Petersburg. This is a new work of 271 pages, and, as its title implies, is devoted to the instruction of Russian village schoolmasters in bee-keeping. The author is a well-known Russian bee-keeper, and as he has travelled a good deal in Europe he has been able to gather much information on bee-keeping in other countries besides his own.

He first describes the primitive methods of keeping bees in Russia, and then goes on to explain the improved methods of Germany, Switzerland, England, Italy, France, America, Denmark, Spain, and Belgium. Although formerly an advocate of the German system of hive his travels have opened his eyes to the great advantages to be derived by using hives such as are adopted in England, America, and in the French-speaking portion of Switzerland. The Dadant hive, with which he became acquainted whilst staying in the latter country, is illustrated and described, as well as a number of inventions adopted by Swiss bee-keepers. Nor are our appliances and methods forgotten, for he speaks of them in complimentary terms, and the *British Bee-keeper's Guide-book* and its illustrations are laid under heavy contribution; although in this case, as it frequently happens with some Continental authors, the sources from which information is derived are not always acknowledged.

Bee-keeping in Russia has hitherto been carried on principally for the supply of wax, because a very large quantity of this is used in the manufacture of candles, as the ritual of the Greek Orthodox Church (the Russian Church) requires that these should be made of pure bees-wax only, and the priests are very particular with regard to this. Mr. Zoubareff points out that, as the honey resources of Russia are very great, by adopting the improved methods of bee-culture much more could be obtained. Even close to St. Petersburg, on the Lake of Ladoga, he is able to get great quantities of very fine honey. He says that he sent some of this honey to M. Bertrand, at Nyon, and that it was pronounced second only to the honey coming from Grion at a height of 3707 feet above the sea. This honey, which was said to have been gathered from *Echium vulgare* (Common Viper's Bugloss), a weed which abounds in the plains near St. Petersburg, we had an opportunity of tasting and found it very good, although the flavour was not to be compared to that of clover or esparcette.

The honey supply of the country falling far below the demand, he recommends village schoolmasters to take up the subject and add to their income by keeping bees.

It appears that there are many more enemies of bees in Russia than with us. Amongst those mentioned are bears, who are very fond of honey, and will frequently destroy a hive if they can get at it, and the only remedy is to have the hives in houses. Storks are also mentioned, as well as gad-flies, as enemies of honey bees; but Russian gad-flies must be different to ours, for, with us, in their larva state, they are parasitic on herbivorous animals, and in their perfect state we have never seen them attack bees and suck out their honeyed sweets, as the author describes.

A whole chapter is devoted to the diseases of bees, vertigo, constipation, dysentery, and foul brood, being minutely described, and the remedies for the latter, camphor, eucalyptus, and salicylic acid recommended. We were surprised to find no mention of the phenol treatment which a fellow-countryman of the author's, Professor Boutlerof, of St. Petersburg, and author of *Ptschela*, a work now in its fifth edition, introduced in 1874. Notwithstanding that a Russian winter lasts frequently for six months the author prefers wintering bees in the open to a cellar, as recommended by some; and we feel greatly flattered by finding our directions given in the *British Bee-keepers' Guide-book* literally reproduced as being the best for successful wintering, even in a climate like Russia. The book, on the whole, is well written, in a fluent and easy style; and we have no doubt that, if the schoolmasters, for whom it is specially prepared, study it and adopt the improved hives opening at the top, there is a great future for bee-keeping in Russia, and that, instead of importing honey and wax to supply the present demand, she will be able to supply other countries where, owing to inefficient hives and appliances, bee-keeping is on the decline.

Foreign.

FRANCE.

Writing to the *Bulletin d'Apiculture de la Suisse Romande*, M. André Parpaite, of Chateau de Carignan (Ardennes), says: 'The Carniolans have slightly deceived us, nearly all their honey turned into brood, one queen laid in June 3251 to 3272 eggs a-day! But when the Italians were inactive, the Carniolans made up for lost time and filled several frames with honey, found I do not know where. The Italians this year have satisfied us completely, but it is very difficult to get satisfactory queens from breeders.'

In the same Journal we find Brother Henri, of Châteauroux (Indu), writing to say he had completely cured foul brood by fumigating with thyme. Three hives very badly diseased were submitted to fumigation with thyme for eight days, and all traces of foul brood disappeared. The remedy is as simple as it is effective.

SWITZERLAND.

M. Ed. Bertrand, editor of *Bulletin d'Apiculture de la Suisse Romande*, and President of the 'Société Romande d'Apiculture,' has this summer given a course of lectures and instruction in bee-keeping. The course, which took place at Nyon, lasted six days, and was attended by forty-seven persons. In all fifty-seven persons entered their names, but ten withdrew owing to the bad weather. The audience was a very miscellaneous one, consisting of land-owners, agriculturists, tradesmen, professors, gardeners, farm servants, a watchmaker, an engineer, a doctor, an architect, a chemist, a forester, and several ladies. With the exception of three persons, who came from France, they all belonged to the cantons of Geneva, Vaud, Neuchatel, and Berne.

Instruction commenced at half-past seven every morning with lectures and the theory, and the afternoons were devoted to practical work in the apiary.

M. Bertrand gave all his descriptions in such a clear way that they were within the comprehension of those even who knew nothing about bees. Notwithstanding the rainy weather every pupil had the opportunity of manipulating the hives in his turn. M. Bertrand was assisted by M. Auberson, of St. Cergnes, who drove the bees and transferred combs for the instruction of those present.

A visit was also paid to Allevays, M. Bertrand's apiary (described on page 29, *British Bee Journal* for 1884), situated in the Jura.

GERMANY.

Two Methods of Detecting Adulteration of Wax.—In one of the last numbers of the *Bienenzeitung* you gave us some information about ceresine. I was at the time engaged on a similar inquiry which, however, from want of time, I was unable to complete, but some notes I made concerning ceresine may perhaps still be of interest to you. Its melting point varies between 40° and 80° (Réaumur), according to its origin. Its specific weight is quite as varying, but does not exceed 0·91, in every case, therefore, it is specifically lighter than bees-wax, the specific weight of which is 0·96. The solvents for ceresine are the same as for bees-wax. Ceresine dissolves readily and completely in benzine, petroleum, ether, ether and bisulphide of carbon. Fuming sulphuric acid (so called Nordhausen Acid) acts very differently upon the two kinds of wax. Ceresine heated with fuming sulphuric acid is not decomposed into carburetted hydrogen, the mixture at most assuming a dark colour from the presence of organic substances. If the solution be diluted with water and shaken with petroleum ether, the wax passes into the latter, and on evaporating the solvent, is left behind in the shape of white flakes. Bees-wax when similarly treated effervesces violently and is so completely decomposed that no portion of it passes into the petroleum ether. By this means it is easy to detect adulteration of bees-wax with ceresine.

Another method, the so-called floating test, is easily applied to ascertain the purity of wax. A little pure wax being melted a few drops of the melted wax are dropped upon a slip of glass; a few drops of the wax to be examined being prepared in the same way. Some spirit is now poured into a tall narrow glass the small pellets of pure wax are thrown in, and, while stirring the liquid, water is added until the particles of wax are floating in it. As spirit and water, when mixed, cause a rise of temperature in the liquid, the particles on cooling will rise to the top, because the liquid has become specifically heavier. More spirit should then be added until the wax particles are floating in the liquid again. If the particles of the wax to be tested are placed in this liquid they should likewise float, if pure—if adulterated with ceresine, paraffin, &c., &c., the particles will rise towards the surface, as all substitutes for wax are specifically lighter than pure bees-wax. It being essential that the wax pellets should be absolutely free from air the wax should first be melted and any air-bubbles adhering to it in the liquid should be removed by stirring with a glass rod. A spirit and water mixture of exactly the specific weight of wax may be kept in well-stoppered bottles for testing at some future time.

I have been examining artificial combs by both methods and have found that they consisted, if not entirely, at least chiefly, of ceresine. I refrained from publishing the results of my examination because the combs I experimented upon were not obtained by me from the manufacturer direct, but were given to me by a friend. I think, however, that all adulteration has now effectually been put a stop to, and we ought to be grateful to Mr. Hilbert for calling our attention to it. It is to be hoped that the control which is about to be established will prove an effectual check on adulteration of wax in future.—A. Korndorfer, *Pharmaceutical Chemist.*

Bees and Bee-keeping.—On the 7th November an interesting essay was read before the Wakefield Paxton's Society meeting by Mr. Frank Eccles, of Newmillerdam. The essay was accompanied by numerous bee-appliances and specimens of different species of bees. The essay was much appreciated by those present, and will, no doubt, give an impulse to bee-keeping in the district.

Antiquity of Bee-Keeping.—The earliest Semitic and Aryan records, the Book of Job, the Veda, Egyptian sculptures and papyri, as well as the poems of Homer, confirm the early cultivation of bees by man for domestic uses; and their frequent representation in Egyptian hieroglyphics, wherein the bee occurs as the symbol of royalty, clearly shows that their economy, with a monarch at its head, was known. A hive, too, being figured, as Sir Gardner Wilkinson tells us, upon a very ancient tomb at Thebes, is early evidence of the domestication of the bee there, and how early, even historically, it was brought under the special dominion of mankind.

Varieties of Bees.—How numerous are the varieties of bees may be conceived when it is stated that of bees found in Great Britain alone, Kirby, in his monograph, has enumerated 220 species, and other more recent observers have increased the number to 250. The species, however, which by its commercial importance, as well as by its remarkable habits and social organization, presents the greatest interest, is the hive-bee.—Dr. Lardner.

Echoes from the Hives.

Alton, Hants.—This is my second year of bee-keeping on the new principle. This year I took from six hives about five cwt.—having four hives doubled on Mr. Cowan's principle, the others were worked for comb honey. I had one stock to begin with, then bought one swarm, made all my hives out of old packing-cases, and, for my part, like the look of them as well as any I have seen. They are made Association standard size and double wall. I have now nineteen of them all full. Most of them are made up of driven stocks of last year and this year. I think as a young beginner I have done very well with them. I might have taken more honey, as I have made up twelve driven stocks with the last gathering honey, each lot having two, three, and four lots put together. There is round about this neighbourhood a large number of bee-keepers all on the old principle, that is, to destroy the bees when they take the honey. I am trying my utmost among them to get them to take to the new principle, but cannot succeed. I have told them how much I get from one hive; the answer I get is, 'Your bees come and rob my bees.' This autumn I showed some of them the way to drive their stocks and unite them with the ones they were going to save. That seems to please them a little.—A Young Beginner.

Honey Cott, Weston, Leamington.—The weather here from about the 15th to 20th was very severe, with very sharp frosts, and has continued very raw cold ever since, so that not a trace of a bee has been seen on the wing, though on looking round the entrances I see here and there a few dead bees that have been carried out, that have fallen victims to the cold or old age. I have begun to look round to get things ready for another season, which, as every bee-keeper hopes, will be better than the last. I shall be glad to see a weekly issue of the *Bee Journal*.—John Walton, *November 26th.*

Nov. 23rd.—I have lately returned to this part of the country (in the neighbourhood of Bournemouth) after a short stay in London, and I expected to find my bees snugly hybernating—for there had hardly been any daylight in London, in many places the gas burning all day; but I found here bright sunshine and warmth, and the bees out in thousands, busied about the abundant flowers of the arbutus, which, judging from their fragrant scent, seem to be particularly full of honey this year. I watched carefully about many of the arbutus trees (it grows large and freely here), but I could not see any bee collecting pollen. They seemed to be gathering honey only. I do not remember seeing the arbutus included in lists of honey-giving plants.—H. F.

Hunts, Somersham, Nov. 25th.—We are now having rather mild but dull weather. For several days previous to this week the very sharp frosts we have had have kept the bees in their hives. Nov. 7th was a very fine day, and I was very glad it was because I had five lots of bees to drive for a cottager, who had been obliged to defer taking his honey and would have them up then either by his own system or mine. I have driven very little better lots earlier in the season, and never have I seen the bees run so well, or had the skeps clear of bees in less time in all but one lot. As I did not expect more driven bees after the beginning of October, I had no combs of sealed food ready. I do not altogether regret this, as I shall be able to carry on experiments in wintering on empty combs, as I did last year with bees I got under similar circumstances, with this difference, I shall not trust solely to candy. How I winter these, and with what results, I shall be glad to communicate next spring.—C. N. White, *Hon. Sec., Hunts B. K. A.*

NOTICES TO CORRESPONDENTS & INQUIRERS.

T. B.—*Principle of Extractor.*—The principle is similar to the Amateur extractor, but it is not as convenient to use as it has not got the multiplying gear or moveable cages for reversing the combs.

Student.—Mr. Cheshire, in Part III. chapter 5, of 'Bees and Bee-Keeping,' deals at some length on the stomach-mouth of bees. You will be able to deduce from it the information you seek. Queens and drones have a *magenmunde* in less development than that of workers.

South Warwickshire.—1. *Whether to Work for Extracted or Section Honey.*—At the prices you name as offered for section honey and extracted respectively, we think it would pay you better to work for extracted. 2. *For Extracted Honey.*—The doubling system, which has often been described in our columns, will give you the largest results.

J. T. C.—The conditions being as stated by you, we do not concur in the decision of the judges. But we confess we always have a diffidence in coming to such a conclusion respecting judges' awards, for while writing we hear a voice saying, '*Audi alteram partem.*'

T. H. A.—*Bees with Insufficient Stores.*—You can only give candy now. Lay a cake under the quilt on the top of the frames. In the case of skeps, if you lay the candy over the feed-hole be sure that you cover up closely so as to prevent a through-draught through the hive. Give it now: do not wait until the stores are exhausted.

W. H. Hughes.—*Stewarton Hive.*—Dr. Bartrum's exhaustive treatise on the Stewarton Hive is published by Mr. Huckle, Kings Langley, Herts, price 6*d.*; and you will from it gather the proper mode of working this hive. We are not aware that Mr. Blow's principle deviates from that of Dr. Bartrum.

D. H. D.—1. *Unclimbable Fence.*—Please refer for makers of this to advertisements in the *Field* and *Agricultural Gazette*. 2. *Clover.*—White or Dutch clover may be sown early in March on ground previously raked fine, then raked again after the seed is sown to ensure its being sufficiently covered with soil. All that is required afterwards is to see that all coarse weeds are pulled up. Railway banks are not the best positions for the cultivation of bee-flowers, especially white clover, being often too dry and sterile to bring this valuable plant to perfection, at least, as far as the secretion of honey is concerned. Alsike clover and broad red clover may be added to the above, requiring the same cultural treatment.

South Cornwall.—1. '*Ripe*' *Honey*—You ask for the simplest definition of 'ripe' honey. We answer, Honey which has attained the specific gravity of 1·350, which is the specific gravity of average honey. 2. *Granulation.*—Yes. Unripe honey, or honey considerably below the specific gravity of 1·350, will granulate. Granulation, indeed, depends more upon the source from whence the honey is obtained than on its 'ripeness' or 'unripeness.' 3. The application of heat—say 200° Fahr.—to granulated honey will reduce it to a fluid state. Honey so treated evaporates its watery particles, and, when cooled, its specific gravity will have been rather increased than diminished from the point at which it stood previous to granulation.

A Surrey Bee-keeper.—*Transferring.*—When transferring from skeps to frame-hives at spring, it is usually considered best to allow the skep to swarm, and three weeks afterwards to transfer bees and combs from skep to frame-hive. It may, however, be done at any time from the middle of March to the end of April, a fine day being chosen for performing the operation.

F. Eccles.—1. *New Feeder.*—Since you ask for our *candid* opinion of your idea of a New Feeder, of which you send us an elaborate sketch, we give it you. 1. Although very ingenious we think it far too com-

plicated ever to come into general use. ii. It would be expensive. iii. The holes and plugs in the hive side are decidedly objectionable. iv. It would never supersede the *principle* of bottle feeding through the feed hole, now well established and skilfully applied in several of the modern feeders. v. Inside feeders, both for fluid and dry food, much simpler and less expensive than yours, and answering exactly the same purpose,—minus the disturbance caused by removal for refilling—are already in the market. vi. Valves, taps, and troughs, *might* not work smoothly, especially if the syrup became granulated. 2. *Zinc Floor-board.*—We have no knowledge of the floor-board you mention and see no necessity for the application of perforated zinc to this purpose. 3. *Removing Quilts.*—The plan of removing quilts on a fine day in spring, thus enticing the bees to fly from the open top of the hive, would lower the temperature of the hive injuriously, we think, and would, undoubtedly, lead to robbing. If entrances are opened to full extent, and floor-boards are kept clean, there is no necessity for any such practice. 4. *Open-air Feeding.*—We neither recommend nor practise open-air feeding, as it is decidedly conducive towards arousing the robbing fever, and intense commotion throughout the apiary. Besides, however kindly disposed towards our neighbouring brother apiarists, we neither like to feed their bees, nor to throw their apiaries into a state of mania. 5. *Cheshire's Work.*—There are already published four numbers of Mr. Cheshire's work on Bees, which may be obtained at the office of the *Bazaar*, 170 Strand, London, at 5½*d.* each for cash, the published price being 7*d.* It is published monthly. We are unable to give a decided opinion on a work of which only a small portion is published. At present it appears more scientific than practical, and is ably written. 6. *Tins.*—We cannot answer your query as to the 'cheapest tins.' See our advertising columns. 8. *Caging Queen.*—The recommendation to which you allude in your supplementary query, refers only to cases of dysentery in which it may be advantageous. We prefer prevention to cure. There would be no necessity for caging the queen, nor do we think the tents you speak of would be of use, or desirable in such case.

ERRATUM.—Page 378, line 20, *for* 'below 50° to 60', *read* 'between 50° and 60°.'

Our next Number will contain Title and Index to Vol. XIII.

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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

[No. 184. VOL. XIII.] DECEMBER 15, 1885. [PUBLISHED FORTNIGHTLY.]

Editorial, Notices, &c.

THE BRITISH BEE JOURNAL.

As we have intimated in previous numbers, the time has now arrived when it has been deemed desirable that the *Journal* should be published weekly. Though its more frequent appearance is but a development of the previous stages through which it has passed, yet in some degree this may be considered a new departure; and being so, we have taken into our best consideration whether, in the interests of that science which the *Journal* has been established to uphold, some improvements or some fresh arrangements may be entered upon, which it is presumed its weekly issue will enable us to carry out.

During the coming year, we propose to devote a portion of our space to a department to be entitled 'Selected Queries,' replies to which will be given by the most prominent and successful bee-keepers. All the leading bee-keepers whom we have invited have kindly signified their readiness to contribute to this, either by asking questions or by replying to the queries. The 'Selected Queries,' which should be brief, to the point, and of general interest, will be forwarded to some of these gentlemen; and the question with their several replies will appear in the *Journal*: and these replies should be concise and clear. We believe that this department will be of great value to those concerned in bee-keeping, for in it they will find, and will be able to compare, the opinions of many practical honey-producers on the same point. We believe also that a greater degree of consideration will be bestowed on the replies, seeing it will be known that others will be answering the same questions. It will be very interesting to note the different views on the same subject, and our readers will be afforded an opportunity in our correspondence columns to criticise the replies, and to supply fresh queries for future numbers. By this means, the opinions of the most practised apiarians will be, as it were, focussed on the subject; and we trust that this arrangement will prove, not only interesting, but instructive. Only questions of general interest will be accepted; and none concerning the manufacture or sale of goods, or that might partake of the nature of an advertisement, will be admitted.

To facilitate reference all communications and queries will be numbered, and correspondents are requested to mention the number when referring to any letter or query.

Queries, also, of general interest will be inserted in one number and readers invited to answer them in our next. Any unanswered in this way will be answered by the Editor or others. Those of only personal interest will be answered, as hitherto, in our 'Notices to Correspondents.' All queries forwarded will be attended to, and we will do our best to supply the information desired. It is necessary that our correspondents should bear in remembrance that as it is necessary for us to go to press in advance of the date of issue, they cannot always be replied to in the issue immediately following the receipt of their communication.

While admitting correspondence and soliciting free discussion we do not hold ourselves responsible for the opinions expressed by our correspondents, and we desire that all communications should be addressed to the Editor, c/o Messrs. Strangeways, Tower Street, Upper St. Martin's Lane.

Under the heading of 'Gleanings' we propose from time to time to give a summary of the views of, or any improvements introduced by, the principal foreign bee-keepers, which will enable us to keep abreast with the onward march of bee-keeping in Europe and America.

We have frequently been requested to publish the market prices of honey and wax. This we have had a difficulty in complying with; it has hitherto eluded us, seeing the produce of these articles has not been sufficiently large to warrant us in quoting a market price; but such has been of late the progress of apiculture, as evidenced by the establishment of honey companies, and by the interest taken by the public generally, that the prices of honey and wax have become in a great degree established, and we shall have much pleasure, to the extent of our ability, in giving the market prices from time to time.

It is also our desire to improve our present method of publishing notices of Shows by giving place, date, and name of secretary, and date of closing entries. When advertisements of shows have appeared in the *Journal*, the above information will be published free of expense; in other cases a small charge will be made for their insertion. We believe that this plan will meet the views

of exhibitors and the managers of shows. In a similar manner we also propose to devote a portion of our columns as a business directory, giving names and addresses of manufacturers and dealers in apicultural appliances, honey, &c.

We hope, also, to give biographical notices of famous bee-keepers, both of former and of present times. We shall also be pleased to give descriptions of noted apiaries in our own and in other countries.

We trust that the above arrangements will meet with the views of our subscribers, and will prove conducive to the best interests of bee-keeping. We shall at all times be pleased to receive suggestions, and to give them our best consideration.

We desire to express our gratitude and our indebtedness to the Secretaries of Bee-keepers' Associations for all the trouble they have taken in the past in the circulation of the *Journal* in their respective districts. May we call upon them to continue their kind efforts on our behalf, so that by their aid, and that of our numerous subscribers, our publication may obtain a greater degree of usefulness, and maintain and increase that position which it holds in the estimation of the bee-keeping public?

We take this opportunity of tendering our sincere thanks to our subscribers and contributors for the warm interest that they have taken in the progress of the *Journal*; and we have good reason to rejoice, when we consider the increased number of those engaged in apiculture,—when we note that honey-production is rapidly becoming a new industry,—when we see that the value of honey as food and medicine is being so generally acknowledged, that our labours in the promotion of bee-keeping have not been fruitless or unavailing.

Our next issue will be published on Thursday, January 7th. We have selected Thursday as our publishing day for the weekly issue in order that subscribers who receive the *Journal* through their local bookseller may receive it without fail on Saturday. Advertisements intended to be inserted in our next issue must reach us not later than Monday, January 4th.

It only remains for us to express a hope that the coming year will be equal to the desires of all our friends, and to wish that one and all may have a pleasant Christmas and a happy New Year.

REVERSIBLE FRAMES AND HIVES.

(*Continued from page* 383.)

In our last article we described the various devices brought out for reversible frames. We will now consider the advantages and disadvantages of the system.

Of course, if the same object can be accomplished with our present frames, there would be no use in adopting reversible ones, unless, indeed, the use of them effected a great saving of time and labour. Now what are the advantages claimed for this system?

1. The comb is stronger than in the old style, being fastened to the wood, and less liable to break out.

It is perfectly well known that even although we use comb-foundation the bees will only fasten their combs to the top and side bars and not to the bottom bar; and that they invariably treat the bottom bar as though it were the bottom of the hive, leaving a space of nearly half-an-inch. This can to a certain extent be remedied by allowing the sheets of foundation to hang down to within half-an-inch of the bottom, the bees would then draw it down, and fasten it to the bottom bar, but even then they leave large passages between the bottom of the comb and frame. By reversing the frames the bees continue to build the comb up to the bottom bar which is now turned to the top, and in this way the comb is firmly fixed to all the four sides of the frame. Twenty years ago we perceived that the passage left at the bottom of each frame was so much wasted space, and we tried to make the bees fill up this space. We at last succeeded without reversing the frames by cutting the combs out, and allowing them to rest on the bottom bar. They were then tied into the frames with tape just as in transferring. In twenty-four to forty-eight hours the combs were fixed to the sides and bottom bars, and the bees had also continued and fastened them up to the top bar. The tapes could then be removed in the usual way without taking out the frames. In this manner we have always had solid slabs of comb fixed to the frames on all sides without having recourse to reversing them. There is a very great advantage in having combs fixed in this way, as it makes them very much stronger, and they are not so liable to break out in the process of extracting.

2. By reversing the combs the honey is carried up into the sections above the frames.

Usually the bees place their honey above their brood so that the frames in stock-hive contain as a rule some honey in the upper part of the combs. In working sections, our object is to limit the lower hive to the production of brood only. We do not require any honey in the frames, but would prefer it all in the sections instead. Sometimes it is very difficult to induce the bees to go into sections, especially if they are not put on at the proper time. By reversing the combs, the brood is brought to the top and the honey to the bottom, a most unnatural position, and the bees set to work at once to clear the cells of honey and carry it up to a more natural position above the brood. Here they find no combs available, and are therefore forced to carry the honey into the sections placed above them. At the same time this stimulates the queen to greater activity. We have hitherto accomplished the same object by uncapping the honey-cells above the brood, without removing the combs from the hives, although we have frequently been obliged to extract honey from the combs in the brood-nest to give the queen room to lay, a process which reversing the combs is said to obviate, and is a point in favour of reversible frames. We, however, do not see that all these advantages are sufficient to induce us to alter our existing frames and arrangements, and go to the expense and trouble of reversing our combs in the brood chamber, as we can obtain the same results by other means.

But there may still be some advantage in using reversible frames in the upper storeys destined for extracting. For extracting purposes, we place a hive the same size as the body hive, and filled with frames of empty comb, on to the stock-hive. We do not use perforated zinc, as we consider it a hindrance to the active work of the bees. When the bees require more room another hive is placed on to this, and in this way we have had bees working in four storeys. If the frames are left to themselves the queen passes from lowest hive into the second storey, and the lower parts of the combs become filled with brood. The combs in which worker brood is reared

are about $\frac{3}{8}$ths of an inch in thickness, and if they were much thicker the queen would not lay any eggs in them. The bees only require $\frac{3}{8}$ths of an inch space between the combs for passage, consequently, if the combs are placed $1\frac{1}{2}$ inches apart, as they are bound to be where frames with broad shoulders or distance-pins are used, the combs can be constructed $1\frac{1}{8}$ inches in thickness. They are in fact drawn out to this thickness at the top, and are used for honey; sometimes even they are thicker; and if honey is coming in fast the bees content themselves with less space between the honey combs; but as the queen ascends into the upper storeys, she finds the cells drawn out to about the proper length and at once deposits her eggs there. If now the frames in the second storey are reversed, it brings the wide comb to the bottom, and the thinner comb to the top which, as soon as the brood hatches out, is used for storing honey. The greater thickness of the comb is as an effectual queen-excluder as perforated zinc, and she is henceforth confined to the lower chamber. In our experiments, we get the combs in the second storey built out at the top to nearly $1\frac{1}{8}$ inches thick, and we found by reversing these that the combs were drawn out to this thickness throughout, and at the same time the queen was kept to the lower compartment. In our own hives we use neither broad shoulders, nor distance-pins, as we have always found these a hindrance to quick manipulation, and without them we have the bees more under our control: we can have combs built of any thickness we may desire, so that the reversible frame does not present the same advantages to us as it would to those who are not able by broad shoulders or distance-pins to control their bees in the same way that we are able to do. To these reversing the combs will enable them to accomplish in the brood-chamber what we do by merely bringing the frames closer together, and putting them at a distance of $1\frac{1}{4}$ inches from centre to centre, namely, to use the whole of the comb for brood-rearing. It would also enable them in the second storey to restrict this to storing honey only, and would at the same time do away with the necessity of using queen-excluder zinc. Whether reversible frames will soon come into general use we are at present unable to state, but it does not appear to us that they at all simplify manipulations. Our object should be to have hives as simple as possible, and to do with as few complicated appliances as we can; and, notwithstanding the statements of Mr. Heddon and others, we confess we do not yet see the enormous advantages to be derived from adding to the complication of our hives by adopting generally the principle of reversible frames.

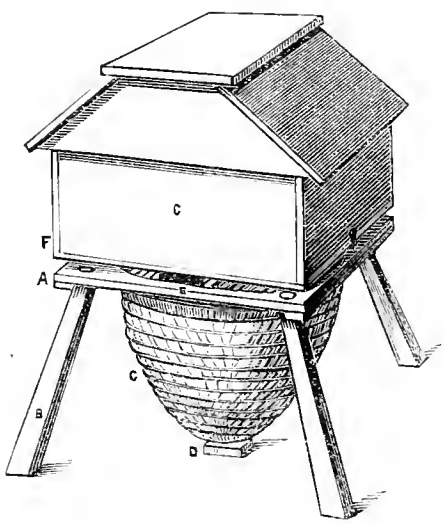
We are also supported in our views by the fact that the reversible frame has not come into general use in America. Practical bee-keepers do not use it, and we may be sure that if reversing frames were of such great advantage, they would not be long in adopting them. Our correspondent, Mr. Mason, it will be seen on page 388 objects to the writer of 'Useful Hints' selecting the American *Apiculturist* to illustrate that practical honey-producers in America are not generally using reversible frames. We think the selection was a very fair one, for we find a similar consensus of opinion in the other American Bee Journals; but as our correspondent has alluded to *Gleanings*, we are sure he will pardon us if we point out for the benefit of our readers that the subject has, even in this periodical, been practically dropped. In the early part of the year many devices for reversible frames were illustrated and described, and although Mr. Root took up the matter warmly, he gives no report, and dropped the subject in March last. Heddon still remains their champion, but has his last say in July. He is supported by one other; two are against their use, and two are doubtful as to their advantage. The subject was also dropped in the *American Bee Journal* in May last, so that this does not show that these frames, after five years' trial, are gaining favour in America. We hope that English bee-keepers who have used them will send us their reports for publication.

Although we do not see much advantage to be derived from reversing combs in moveable comb hives, because we can obtain the same results with our present frames, it is very different with hives having fixed combs, such as skeps. If these are reversed and racks of sections can be placed over them, they would be accepted by the bees much more readily than if they could only get at them through a hole in the crown of the skep.

In the *Journal of Horticulture*, 'A Lanarkshire Bee-keeper' gives an illustration of a reversed skep which appeared in a Dumfries paper some twenty-five years ago, but even before this time the plan was adopted and carried out as a system by the bee-keepers of 'Gatinais' now for more than three-quarters of a century; and we hope before long to give a detailed account of bee-keeping as practised there.

That an interest in the subject has been created we have little doubt, if we may judge from the number of letters we have received. We realise with our correspondent, 'Irish Novice,' the difficulty there is in inducing cottagers to adopt moveable-comb hives, and apart from the greater knowledge required, the first cost is a consideration with them. As we cannot induce them to adopt moveable-comb hives, let us by all means help them to improve upon their present system by showing them that they can, if they have the inclination, even with their skeps, obtain a greater yield of honey in a saleable form.

The accompanying illustration will show how a skep can be worked when reversed. The top of the stand A can be made by nailing together some one-inch boards, so as to make a square about twenty inches, and in this cut a circular hole a little smaller than the bottom of the skep. To prevent the board from warping, nail two clamps, as shown, one at each end, on the under side, and about two inches wide. The legs can be made of wood, one and a half inches square, tapered and rounded off at the upper ends so as to fit into holes one and a quarter inches in diameter. If the holes are bored at an angle, the legs, when driven in, will spread outwards, as seen in the illustration, and make the stand very firm. Before



driving the legs into their places, if we put a saw-cut into the small end, and after they are in position, drive a wooden wedge into these saw-cuts, they will be very securely fixed. The legs will have to be cut to the proper height we require them to stand above the ground. The skep C can then be reversed and placed in the hole so that the upper ring of straw stands above

the board, and on a level with this push in a few wire nails, to prevent the skep slipping through when filled with bees and honey, and also when the weight of the sections and roof are upon it, and blocking up the entrance. As an additional precaution, we should place a brick or two, D, on the ground, under the crown of the inverted skep, for it to rest upon. Next cut the opening E, at least three inches wide, so that the bees may not be impeded in their progress in and out of the hive. Now, on the inverted skep, place a rack of sections, with an adapting-board F fixed to it, having a hole a little smaller than the hive, which can be covered with perforated zinc. Such an adapting-board can easily be fitted to any existing rack with very little trouble. Over this place an outer case G, with a roof as shown. In our illustration the outer case is shown deep enough to hold two storeys of sections, and the roof is separate, but it can be made all in one, and only deep enough for one rack of sections, if the bee-keeper prefers it so. If even this expense be an object, the stool can be dispensed with by placing the inverted skep into an American cheese-box, and fitting a small alighting-board below the entrance, and a rack of sections, with a simpler roof, can be placed over it. To prevent the roof and sections being blown over, they should be fastened to the stand. Now these are all the appliances that the cottager requires to work this system for sections.

With stocks the method of working would be this:—In the spring, as soon as the hives are full of bees, and they show signs of swarming, or there is a glut of honey, reverse the skep, and place the sections on at once, and as soon as there is any sign of the bees being crowded, put on another rack of sections if necessary. Should the hives not be strong enough when honey comes in abundance, lose no time in uniting two lots by driving the bees from one of the skeps and joining them to another. The empty skep, containing brood, can be placed over another inverted hive, or given to a swarm, which can then be treated as a stock hive, and inverted, placing sections on at once. When the honey harvest is over, the hives should be returned to their natural positions. This is always done in 'Gatinais.' Of course, if extracted honey is required, no excluder zinc will be required, and it will be only necessary to place a skep of empty combs over the inverted hive, or a plain super if the bee-keeper have one.

We do not recommend skeps containing swarms being reversed unless they contain old combs, in which case they can be treated as recommended above. New combs would be liable to fall over from the heat and weight of the bees upon them.

We hope that these instructions and illustration will supply the wants of our correspondent, 'Irish Novice,' and others, and will enable them to try, as well as to induce cottagers to try, this method; and we shall be glad to publish the results in the *Journal*.

USEFUL HINTS.

Winter in earnest, at last, with every appearance of continuance. Our longest and most severe frosts have generally set in immediately before Christmas, notably on Christmas eve. From Scotland, we hear of 20 degrees of frost, with mountains and valleys inches deep in snow. This 'seasonable weather' (!) is travelling southwards, and we are enjoying in midland and south-eastern parts, at least, a foretaste of the coming 'blast.' It behoves all bee-keepers, therefore, to look well to roofs and stands, and to see that all are sound and weather-proof.

Snow should be brushed off covers, roofs, and hives daily, as occasion requires, and should never be left to thaw upon—and probably to penetrate—the hives, rendering them damp and cold, and in the event of returning frost, a frozen mass. Let this be done carefully without shaking or disturbing the hives and bees.

Feeding.—Owing to the mildness of the weather during the early winter, colonies, not well provisioned, may starve for want of food. Barley sugar, or candy, is usually prescribed as winter food, we, however, have used successfully syrup made from the 'Heddon recipe,' which is as follows:—'In a boiling-pan put three pounds of water, heat it until it boils, and with a wooden spoon stir this boiling water as you sift into it ten pounds of granulated sugar. When it is all dissolved, and the syrup is boiling, pour into it half a tea-cupfull of water, in which has previously been dissolved a large teaspoon, level-full, of tartaric acid. Stir it a moment longer, and then remove it from the fire.'

This syrup will not crystallize, if the acid is used in the proportion mentioned, and is of full strength—the syrup being boiled as directed. When cool it is of the consistency of the ripest honey, and should be given warm—not hot—in a top feeder, immediately over the cluster of bees, the feeder being well covered with chaff cushion or heat-retaining material. Excellent recipes for candy will be found in Mr. Cowan's book, p. 151.

Quilts.—If by any chance quilts have become damp and mouldy from leakage, or other cause, a change will be found most beneficial to the bees. Let such be replaced on a fine bright day, by thoroughly dry ones, which may be placed warm upon the hives.

Dead Bees, Ventilation, &c.—Clear all dead bees and refuse of any kind from the entrances, in order to afford full ventilation, and be careful to keep the entrances clear of snow, for—although colonies entombed in a snow-rick for weeks will survive owing to the porosity of the frozen particles—it is best to keep a clear and free passage for the air. The danger to colonies in sheltered positions, when newly fallen snow lies on the ground, is, that being enticed from their hives by the bright beams of the mid-day sun, and settling upon the fleecy material, they sink to rise no more. The danger is less when the snow becomes frozen, but it is best to shade the entrance by placing a board in front of it. By no means close it, or the agitation of the bees, and their crowding at the entrance, may cause the loss of the colony.

Removing Hives.—From the present time to the middle of February is a good time for removing hives or apiaries to near or distant places.

Skeps should be packed for travelling thus:—Let the skep be gently raised from the floor-board and turned bottom upwards, when a piece of coarse canvass must be securely tied over the mouth, the combs having been first secured from side-motion by pieces of cork pushed in between them—three or four between every two combs. Next, place the skep—still bottom upwards—in a box without a lid or cover, with hay, chaff, or other soft material, underneath and around it. Colonies in skeps thus packed will travel securely almost any distance.

Frame-hives require different treatment. They

must not be inverted, but should have a floor-board, upon which strips of wood—about half an inch thick, and of sufficient width to fit in between the bottom bars of the frames—have been nailed. The hive being placed upon this board and secured in position by a few screws, its frames being incapable of lateral motion, and its entrance closed with perforated zinc, may then have its quilts replaced by a wooden framework, upon which has been nailed a sheet of perforated zinc, impassable by the bees, but affording sufficient ventilation, and allowing them to pass beneath it, over the top bars of the frames. The securing of this frame-work in its place by long screws, driven into the sides of the hive, will keep the hive frames in position, and will prevent upward or downward motion. Canvas may be used in lieu of zinc, if preferred, and will answer equally well. By taking these precautions we have moved hives repeatedly hundreds of miles without a single failure.

NOMENCLATURE—defined as a 'system of naming' or the 'peculiar terms of a science'—has scarcely obtained sufficient notice amongst English bee-keepers. Consequently, we have a considerable amount of confusion in terms. The word 'crate,' for instance, is generally applied to the case, or frame, for holding together sections upon a hive, and the same term is assigned to the travelling-case which conveys the sections to market, or exhibition. For the former the proper word is 'rack,' for the latter 'crate.'

The following words are constantly misused or misapplied, and in some of them the accepted nomenclature is utterly wrong; *apiarian*, *hatching-brood*, *fertile-worker*, *fertilise*, *rabbet*, *midrib*, *worker-eggs*, *drone-eggs*, *queen-eggs*,—by the way, are not all eggs *queen-eggs*, being laid by a queen, just as hen-eggs are laid by a hen?—*hybrid*, &c., &c. Indeed a host of others might be named.

Perhaps the worst of all is the word *bee-culture*, the first part of which is *English*, the second part *Latin*, and, being decidedly macaronic, reminds us of the well-known verses beginning—

Felis sedit by a hole
Intenta she *cum omni* soul
Prendere mice.

In this book-making age will no one give us a 'Dictionary of Practical Apicultural Terms?'

In his letter on Reversible frames, in last issue, Mr. Mason blames us for not reporting on his pet subject from *Gleanings*, and asks 'Why mention one American journal only?' To which we reply that we simply quoted the opinions of 'prominent apiarists' which chanced to be given in the *Apiculturist*, in answer to a query put by a correspondent. We had no wish to prejudice the controversy, but simply asked for publication in our columns of the opinions of those who had tried the system. Really, we cannot see that we are open to the charge of *unfairness* any more than he who should quote from the *Times* might be said to be *unfair* because he did not quote from the *Daily News* as well, or in lieu of! So far from taking a partisan view of the subject we hope to give it a full trial in our own apiary next season, and, therefore, were much pleased with the leading article in last issue, and the promise of another from the same pen. 'Measures, not men,' has hitherto been our guiding motto, and we intend strictly to adhere to it in future—*pace* Mr. Mason.

ADULTERATION.—A correspondent sends us the following quotation, taken as a cutting from the *Stamford Mercury*, and upon which he comments in severe terms. A portion of it appeared in the *Times* of the 18th ult., and, doubtless, in other papers also, upon which we had some remarks in 'Useful Hints' for last issue, but which were crowded out from want of space:—

'*Spurious Honey.*—The *Medical Press and Circular* says, "The falsification and adulteration of honey is carried on in an unusually barefaced manner. Large quantities of what is sold as honey is neither more nor less than clarified treacle and simple syrup, worth about 2*d.* per lb. Glass jars are exposed for sale labelled 'New Honey,' the only portion of which taken from the bee-hive is the piece of honey-comb occupying the centre, from which the honey has been previously extracted."

'Probably' (the *Stamford Mercury* proceeds to say) 'it is not generally known, however, that enormous quantities of what is sold as honey is nothing more than a saccharine syrup, which has been passed through bees, and is as "innocent as a babe unborn" of the remotest derivation from flowers. Some bee-keepers buy cheap sugar by the hundredweight, boil it into a syrup, place this "stuff" into a feeder over their hives, stop up the ordinary modes of egress, and thereby set the bees to work to fill their combs with transmogrified syrup. Sugar at a penny a pound thus "converted" into "honey" is sold at 10*d.* or 1*s.* per pound. This sort of "honey" very quickly candies, whereas honey from flowers does not set for many months, if at all.'

The sentence referring to 'Glass jars, labelled "New Honey," the only portion of which taken from the bee-hive is the piece of honey comb occupying the centre,' is evidently in allusion to a well-known American firm who exports largely to this country, but is careful to omit from its labels any such statement as *Guaranteed Pure Honey*, since in our experience (which is considerable, from having visited shows in all parts of the country) we have no knowledge of a single jar of English honey ever having been put up in this form. Mr. Cowan, in his *Bee-keeper's Guide-book*, p. 81, refers to the same practice when he remarks, 'Cut comb-honey in jars is usually adulterated in this manner, a piece of comb-honey being placed in the centre and surrounded with glucose.' And he goes on to quote from the *American Bee Journal*, 'It is surprising that a common swindle, as practised by New York and Chicago honey-dealers of putting a piece of comb-honey in a glass jar, and pouring over it pure glucose, *could* last as long as it *did*.' For the italicised words we would supply *can* and *does*, since the practice undoubtedly still prevails.

But the plan referred to in the *Stamford Mercury*, of feeding bees upon the coarsest sugar syrup, and *confining them to their hives* (!) until they have *transmogrified* the said syrup into so-called honey, needs no refutation at our hands, save to assure the novice that in a few short hours, under such a course of treatment, every bee would have perished, and the hoped-for 'honey' would be *nil*. The author

evidently knows nothing of the subject on which he writes, and has—as our American cousins would say—'got considerably mixed up' between English and American honey, and in attempting to describe that about which he may have *read* something, but of which he himself is in total ignorance. His statement that 'this sort of "honey" quickly candies,' is of a piece with the rest of his assertions, since we all know that *granulation* is the one mark, most certain of all others, of the *purest* honey. The moral to be drawn from all this is to purchase *only* guaranteed English honey. We cannot resist calling attention to our merry friend *Punch's* comments on the subject.

HUM OF BEE.

'SPURIOUS HONEY.—The adulteration and falsification of honey is carried on in an unusually barefaced manner.'—*Medical Press and Circular.*

How to cheat you of your money,
Friends, the latest dodge beware,
Lest you purchase bogus honey,
And the vendors have you there.
Clear-drawn treacle, in addition,
Simple syrup—that is all,
There you get the composition
Which impostors 'honey' call!

'Best New Honey.' In the middle
Of a jar a comb you see,
Drained, and meant your eye to diddle,
All that's from the humming Bee,
Humbug, that for honey passes
With the simple, soft, and green,
Credulous, confiding classes,
Sold, besides, with 'butterine.'

Punch.

THE PRICE OF HONEY.

We are glad to note that the price of good English honey has improved during the last few weeks; 1 lb. sections now realise fully 2*s.* per dozen in advance of the price which ruled during the height of the season. Good extracted honey is also in demand at slightly advanced rates.

BRITISH BEE-KEEPERS' ASSOCIATION.

Secretaries of County Associations are reminded that motions for discussion at the next quarterly meeting must be sent to the Secretary on or before Wednesday, December 23rd.

Persons willing to submit subjects for discussion at the next quarterly Conversazione, to be held on Wednesday, January 20th, are requested to communicate to the Secretary without delay.

KENT BEE-KEEPERS' ASSOCIATION.

The Council of the above Association met on December 9th; and amongst other matters with which it had to deal, the announcement of the resignation of its energetic Secretary, Mr. Jesse Garratt, at the end of the year 1885, formed an important item. The difficulty of finding a successor to such a post is in the nature of things great, and the meeting was unable to see its way to decide upon any step; but it entirely agreed with a suggestion made by Mr. Garratt, 'that the position should be stated in the *Journal*, and the invitation given to apply for the vacant office.' It would undoubtedly be a great advantage to the Association if some one residing in the county would offer himself in an honorary capacity, but the Council is prepared, if necessary, to offer a small salary.

The annual meeting of the Association will be held on or about January 13th, when the Council will be pleased to announce that a suitable successor to Mr. Garratt has presented himself for the office. Applications should be forwarded to Jesse Garratt, Esq., Hockenden, St. Mary's Cray, Kent.

Correspondence.

*** *All Correspondents forwarding Letters for insertion in the Journal, Reports of Associations, Shows, Meetings, Echoes from the Hives, Queries, &c., are requested to direct their communications to* 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways & Sons, Tower Street, Upper St. Martin's Lane, W.C.*'

THOSE REVERSIBLE FRAMES.

For the second time, English bee-keepers have been considering the advisability of adopting a reversible frame. The late craze seems to have been brought about by the recent discussions in American papers, and so far the matter has been commented upon almost wholly by those who have no knowledge of the letters which appeared upon the subject in the early numbers of the *British Bee Journal.*

It must be admitted that in the production of extracted honey, a reversible frame, with its complications, is something worse than useless; and for obtaining comb-honey, permit me to say that all, and more than all, the advantages claimed for an inverted frame can be gained by a simple, and more substantial, non-inverted one, providing that from June 1st the brood-nest be limited in proper proportion to the number of actual workers brought into existence previous to that date. Let bee-keepers bear in mind that any complicated method which adds to the labour and expense of production, and, moreover, which has no special advantage to recommend it, will not be adopted by those who are now compelled to reduce their working expenses to the finest limit, to enable them to compete with the present low prices.

Nevertheless, this discussion has been of benefit to those cottagers and others who use straw skeps, and it will be a mistake for any such to think of supering hives of that kind unless first inverted—not that the inverted cells are any advantage in regard to the amount of honey collected; but the bee-keeper is the gainer simply because a much larger supering surface is offered, and therefore the bees have better access to the same, which of necessity induces them to store more above than they possibly could do with the usual small hole embracing a portion of two, or at most three, combs only. For the same reason, of course, more honey will be collected by such hives thus treated, because the brood-combs will not be clogged with honey at the commencement of the season, as is usually the case, and thus a larger population at the right time is the result.

The foregoing is the true, and the only reason, why inverted skeps have done well; and it will be to the advantage of all bee-keepers if they will but consider that a simple and substantial non-reversible frame, when properly managed, gives us every advantage required from a moveable-comb hive.—S. SIMMINS.

REVERSIBLE COMBS.

Being aware that a very infinitesimal amount of practice is worth a vast quantity of theory makes one rather diffident in offering any theoretical ideas as to the correctness or not of the problem of reversible frames or hives, but your desire for a thorough ventilation of that subject in the columns of the *British Bee Journal*, and the seemingly great interest taken in it by bee-keepers of all nationalities, has overcome my scruples, and given me a desire to place my mite at the disposal of those who are interested in this recently-revived idea.

Amongst the foremost thoughts occurring to my mind, on reading the various letters, is the total absence of anything like an enhanced gross aggregate being given at the end of a season of any apiary, or part of an apiary, conducted on these lines. That, to anyone, must be the chief point on which to base our calculations.

By reversing the combs when filled with honey at the original top, and so placing the stores at the bottom and underneath the brood, must of necessity give a sudden or early return in the supers, but only simply for the time being—that is, until the bees have emptied the bottom cells, and, with a vast amount of labour—and, above all, time expenditure—placing it in its natural position above the brood: the time so occupied by the bees in doing so is short, as compared to the time and labour expended in reversing the pitch of a large portion of their cells—or, in other words, nearly rebuilding their combs. Now, while the bees are so occupied, they, or a considerable portion of them, must be neglecting the in-gathering of the honey, which must be a total loss to the bee-keeper, whilst up to this point the gain has been *nil*. But in emptying these cells room is made for the mother-bee to lay her eggs. In this particular must rest the success, if any, of this principle. Now, what do we find if we super a hive in its normal position *at the right time?* A large proportion of the bees go up into the super and store the incoming honey there, whilst the nurse bees use the honey stored above and next the brood-nest for the nourishment of the larvæ. In these cells, as they are emptied, which at this time is very rapid, the mother-bee lays her eggs, and our stock in a fortnight or so is in as good—I should be of opinion in a better—condition than the reversed one, as our bees in this hive have not performed the amount of work that those in the reversed hive have. It is a physiological fact that the more work you impose upon a subject the quicker the decay; consequently, there will be a heavier death-rate for a time in the reversed hive. This may be a minor disadvantage, but still it must be taken into account.

I can quite understand the advantage gained by the bee-keepers of the 'Gatinais' working this system, as, their honey-flow being of so short a duration, their hives at this important time would be occupied by brood, and if any surplus is obtained at all it must be done at once or their season is lost. This is not so with us.

I am led to the above inferences by a trial I made with a straw skep this last season, which, by supering and doubling, and then gradually reducing the capacity of the crates, obtained forty-two 1-lb. sections: I did not reckon the unfinished ones. Mr. Garratt did not obtain this amount with his reversed skep. I am not by far in the best of positions here for honey-gathering, being located in the middle of the town. Mr. Garratt may be so placed.

There are isolated instances when the supering of a skep after reversing can be done with great advantage, and that is, when the bees hang out in huge clusters, idling their time away; but as soon as I got them to work in the sections, I should again reverse the order of things to their proper position.

'Amateur Expert' writes, in your issue of the 15th November, that the mother-bee is very prone to enter the supers of reversed skeps. Mr. Garratt experienced the same with his, and both had to use excluder zinc. In this there is a very considerable disadvantage. Excluder zinc is an abomination, as most bee-keepers who have experimented with it will agree. It *may* prevent the mother-bee's entrance into the supers, but it very considerably obstructs the worker-bees' passage. I only use it as a diaphragm when supering at the back, the greater freedom and speed with which the bees work without it more than compensating for a spoilt section now and then. With frame-hives there appears to me less advantage than with skeps. It is a poor bee-keeper who cannot make his bees (if good ones) go up in the super, or keep his combs free from stores. To such as cannot, let them try the reversible system.

The above are only my theories. Let us hear some others, and try and deduce some facts from them.

I shall pit two skeps against each other next season; also am fitting up some frame-hives, and will note result. I trust it will be favourable to the reversed ones, as I have noticed that any new advantageous discovery is sure to stimulate the lagging ones.—W. B. WEBSTER, *Wokingham, Berks.*

REVERSIBLE FRAMES.

I must apologise when asking for space for the following letter, but as there are two or three points in the Editorial of the *British Bee Journal* for December 1st which I should like to dilate upon, you will no doubt excuse me. Some persons may fancy that Mr. Buchan and myself, when making the frame for which we took out a provisional protection at the beginning of the year, had seen Mr. Heddon's frame. For my own part I can answer that I had neither seen this frame, nor any description of this or any similar frame. It is another coincidence of the same idea originating in the minds of more than one person about the same time. The frame I am using at present is simply a standard frame without bottom bar, with a smaller rectangular frame revolving inside, allowing a quarter-inch space between the inner frame and top-bar. By doing away with the outer bottom bar I gain so much extra space for comb-building; this seems to be the greatest objection to this reversible frame. The standard size contains 216 square inches, mine 195 squares of comb, taking both sides of the frame; loss, 21 square inches on the two sides of frame of comb; but as the cells for breeding are in the centre of the comb, the space lost is where honey is usually stored. But as reversing is intended to compel the storing of honey in the sections, I cannot see that the extra inner frame takes up valuable space. My opinion is that with a young and good-breeding queen, the population of a hive may be raised much faster under the principle of reversing than by any other mode. For example, the hive which I have exclusively worked on this principle, holding ten frames, contained a much greater proportion of breeding cells per frame of comb than any other I have ever seen worked in the ordinary way. And as a proof of this I may mention that this stock is now wintering crowded on eight frames.

On page 365, the writer of 'Useful Hints' objects to reversing on the ground that the bees have to re-construct the cells for the storing of honey. This is contrary to what I have found from actual experience. If the frames are reversed where honey is being carried in fast by the bees, they will not wait to reconstruct the cells, but will carry all the honey gathered into the section. This I have found to be the case during the whole of the summer, and I believe, after mature thought, that the reason reversing did not succeed with me at the heather gathering was, that the bees finding the cold weather already upon them, confined themselves to the hive proper, because of the extra warmth

in that part, and reconstructed the cells to prevent the honey from running.

Next season I intend to try the following plan, viz., after using the frames reversed during the summer, on the decline of the honey flow to return the frames to their normal position, and then feed up for winter by using a fast-feeder; this can be done in a few days. I can then remove my hives to the hills, with every prospect of obtaining the whole of the heather honey flow in the sections.

In respect to breeding, in reversed cells, I have not found it to make any difference. I wire the whole of my frames and have not found as yet that the wire in the base of the cell is at all detrimental to breeding; in fact, I exhibited this year a frame of comb that contained three queen-cells, the base of each directly on the wire, and each cell producing a perfect queen.—CHAS. G. MASON, *Lothian Bank, Dalkeith, N.B., December 8th.*

[We do not think our standard frames any too large that we can afford to lessen the size of their breeding space by even reducing three sides. The space lost is much too valuable, as it can be utilised for breeding in the way we point out in our article in the present number without having recourse to reversing the frames.—ED.]

BLIGH COMPETITION.

I think Mr. Woodley is not correct in his view of the rules, that it means the greatest weight and value of honey alone. I think the rules very plainly state for the greatest profit, sale of swarms, &c., but not queens. Mr. Woodley goes on to cast great doubt on Mr. Owen's diary. I have heard bee-keepers doubt Mr. Woodley's, but that does not prove Mr. Woodley to be incorrect. I think people hereabout that know Mr. Owen would as soon believe him as they would Mr. Woodley, and as a bee-master they would not think him inferior to Mr. Woodley. Mr. Woodley mentions the 10 lbs. of honey credited to Mr. Owen. I must say I felt a bit curious about that, but I believe the judges were chosen for their integrity and superior knowledge of bee-culture, and quite competent to deal with the matter, and I felt quite sure that what they did was in the interest of justice; and it appears to me that they took a great deal of pains to decide the matter fairly between the several competitors. And now Mr. Woodley asks them, after the settlement of the matter, to reconsider their decision. Reconsider what? Has Mr. Woodley sent a supplementary diary, or what have they to reconsider? Does he wish gentlemen who have already given their awards to sit in judgment on themselves, and to sentence themselves to death in order that Mr. Woodley may put the rope round their necks while he runs off with the first prize, and deprive Wiltshire of the little honour due to her? Some facts about valuation Mr. Woodley carefully left out. His one stock with 30 lbs. of honey was valued at *3l. 8s.*, whereas M. Owen's No. 2 hive, with the same quantity of honey as Mr. Woodley's was only valued at *1l. 12s. 6d.*, and his No. 2, with 20 lbs., *1l. 10s.* The two, with 50 lbs. of honey between them, only valued at *3l. 2s. 6d.* Now, I think, in all fairness, Mr. Woodley should have mentioned this.—CHARLES EYLES, *Box, Wilts.*

BUMPING *v.* DRIVING.

REPLY TO H. JEANES, DEC. 1.

My experience both last year and this has been much in favour of bumping. The very day I heard of the plan last year in *B. B. J.* I operated on thirteen stocks between 11 a.m. and 4 a.m. Of these I drove three, and after the first was much plagued with robbers—the garden not admitting of getting far from the other stocks. In one of the three, the combs, which were heavy with honey and very tender, gave way during driving, and caused much trouble. So I determined to try bumping, and was quite satisfied with the result. Altogether, the three drivings, including cutting out combs and finishing the job, took up just one hour.

By the bumping process I polished off the three next in twenty minutes. I had a little difficulty with one of the ten, as the sticks, which cottagers will persist in using, were so rough and crooked that two heavy combs were cracked across in removing them, and much honey ran out.

This year I have operated on at least double the number, with only two partial failures, caused again by the sticks. I now always take with me a fine 'key-hole' saw, with which I cut through the sticks between each comb if I foresee any difficulty in drawing them out. I replace each hive on its own stand as soon as the combs are removed, and leave till evening; and then do all uniting before tying up to take home. One is not any more likely to be stung in bumping than in driving, and two hours out of three are saved.—W. E. BURKITT.

COUNTY ASSOCIATION FOR GLAMORGANSHIRE.

The question of the formation of an Association for Glamorganshire has often been written of in the *Journal*, but hitherto that much-desired object has not been accomplished (although it was stated in the report of the Neath show this year that the prizes for bee-produce at that show were contributed by the Glamorganshire Association). I have ascertained from the indefatigable Hon. Sec. of the Carmarthenshire Association, L. Oswald Lewis, Esq., that there are a great many gentlemen who would join, but they all live in the western portion of the county, at Swansea and neighbourhood. I don't think that he mentions a single name from Bridgend to Cardiff. There are also a great many bee-keepers in the Neath district; here, there are something like a dozen.

To communicate personally with all would entail a great deal of expense, I would therefore ask the bee-keepers of the county, through the medium of the *Journal*, to send me replies to the following queries:—

1st. The names and addresses of bee-keepers who will join?

2nd. The place to hold a preliminary meeting?

3rd. The date and hour to suit them for such meeting?—D. P. DAVIES, 17 *Commercial Street, Aberdare.*

[We should be pleased to hear that this endeavour to establish an Association for Glamorganshire has met with success; and that the bee-keepers of the County have rallied round Mr. Davies, and assisted in its promotion.—ED.]

NOTES ON THE PAST SEASON.

On page 378, Nov. 15, I see the Honey Company is found fault with on account of low prices. The Company, no doubt, is influenced by supply and demand, like any other business, and must buy so as to sell again. It is not likely that ridiculous prices like 1*s.* 6*d.* to 2*s.* 6*d.* per section can be maintained. The bee-keeper now has two chances, he can sell all he can privately, and the Company will take the surplus off his hands.

For instance, I have sent the two Companies 810 sections, about half my crop, which, being unable to dispose of, I should have had to melt and sell as extracted honey at a considerable loss. They also deal very fairly in the matter of broken sections.

The swarming period here was the most protracted one I ever knew; the weather was very variable, and a fine day was the exception. The bees defied all attempts to keep a record of the ages of queens, as they swarmed most unaccountably, some settling, as was natural, whilst

a great number entered other hives, and a few days after would start up again and make other changes, so that queen record as well as bees got pretty well mixed. A branch or two stuck in the ground opposite the hives was a great attraction, and kept them from the tree-tops. One swarm, that had alighted on the ground amongst potato stalks, was overlooked and stayed there nearly two days and a night, and were spread on the ground in a circle of, say, eighteen inches diameter, when found. How long would they have stayed there?

One cold evening I found nearly a pint of bees on the ground that had fallen from a cluster of a skep, which had been hanging out for some time. The bees were to all appearance dead and looked shrivelled. They were taken in a tin, and covered over near the fire. A little honey given them, and in fifteen minutes were in first-class stinging condition. They were taken back to the hive, the tin inverted, and left for the night over the feed-hole of the skep.

Can you, Mr. Editor, give your readers a description of the best form of spring, suitable for honey crates 28 inches by 10? I have used pads, but they do not give protection enough. If the dynamite scare extended more generally among railway porters the results would be very beneficial to honey producers and consigners.

I have been very successful with the Simmins' method of direct introduction with a large number of queens raised in nuclei.

The yield of honey has been very fair, of good quality and appearance. As a climax I moved forty-four hives to the heather, and on account of bad weather lost all expenses.

Moral. Moving to the heather is a doubtful privilege, unless in exceptionally dry summers.—J. C. LAMBERT, *Sunk Island, Hull.*

[Any crate with springs must of necessity be large and clumsy in comparison to the contents. When we were experimenting with crates, we constructed one having an outer case 6 inches longer and 6 inches deeper than the one to hold the sections, which was suspended by indiarubber door-springs fixed from the 4 outer corners of the inner box to the 4 inner corners of the outer box. This leaves a space of 3 inches all round, and the inner case, of course, does not require to be glazed. An American named Hoge brought a lot of section honey from America for Messrs. Thurber in double crates with indiarubber balls placed at intervals between the two cases. After making a number of experiments we came to the conclusion that the ordinary crates, as usually made with glass sides, were the best for general use. The railway people being able to see the comb honey through the glass are much more likely to handle it carefully, more especially if the receiver declines to take it if damaged, and makes the railway company pay for the breakage.—ED.]

COLOUR OF HIVES AND INSTINCT OF BEES.

Would you kindly allow me a few words in answer to 'Woodleigh,' as I think it is of some importance to bee-keepers, since at least a majority of apiarists go to the trouble and expense of giving to their hives different colours for the purpose of assisting their bees, but more especially the queens in finding their respective hives. After very carefully reading 'Woodleigh's' letter I am greatly strengthened in my opinions against this much-used, but little-understood word 'instinct' as applied to bees; more especially, and I hope 'Woodleigh will pardon me when I say that his letter contains *no evidence* in favour of his argument, whereas it *does* contain evidence against it. 'Woodleigh' asks what utility any colour can be to a queen that has just emerged from darkness; and then later on admits that *worker-bees* may be able to distinguish one colour from another because of the practice they get, but not so with queens. I cannot agree with 'Woodleigh' in supposing the queen to be *inferior* to the worker. If a worker can distinguish one colour from another, why not a queen; and what difference does it make about her majesty coming out of darkness for the first time? Does not the worker-bee have a first time of coming out of darkness, and who ever saw one single bee try to gather honey from a brick wall or oak post?

When a queen leaves the hive on her wedding-trip she is fully developed, and I think there is no doubt her eyesight is as good as at any time after, for she no sooner leaves the alighting-board than she begins to survey the whole position—noting the colour of this and the form and position of that, and this is continued until she is satisfied that she will know the place again when she gets back—and not only the apiary but the hive and its entrance. After she is thoroughly impressed with the outward appearance of her mansion she rises above all obstructions, and no doubt marking objects on her way, flies away on her happy mission.

But suppose the queen left herself in the hands of instinct, and instead of taking the trouble to ascertain the colour and position of her dwelling, she left recklessly as it were, thinking of nothing but matrimony and its blessings, what would become of her? Would instinct bring her back to her hive? Certainly not. She had left home without preparing for the return, and therefore having no guiding stars, no impressions of colours and forms, she flies about in search of home until she becomes exhausted and ultimately is lost.

I contend that if bees came back by instinct to their hives, such a thing as getting lost would be out of the question, and instead of stopping to make a note of every little particular, they would fly straight off from the hive and instinct would bring them back again. It is simply cause and effect. I hold that bees employ *exactly the same means* in finding their homes as human beings do in finding theirs: and without 'Woodleigh' will admit that he himself finds *his* home by instinct, he has before him a difficult task.

In my last I gave 'Woodleigh' a test which 'staggered and confounded' him, simple and harmless as it was, and yet after recovering he frankly admits just what my test was intended to prove—viz., That if a hundred bees were taken 3½ miles from their hive the number returning would be in proportion to the number of 'fielders'—and if so, where is 'Woodleigh's' instinct? 'Woodleigh' next wants a giant to carry me off in a sack—I hope he won't—and turn me up in a strange country, and then 'Woodleigh' intimates that I should not be able to find my domicile. I quite concur. I should have no guiding marks and consequently should be lost, *just as bees would under similar circumstances for want of instinct.*—CORRIGENDA, *The Apiary, Selston, Alfreton.*

P. S.—In reply to 'Student' I must ask him to be kind enough to refer to *his own words*, as they define in a nutshell, as it were, my views on instinct, or rather as to what it is; and it is against instinct of this description that I am arguing with 'Woodleigh.' I do not know of any other definition for instinct.

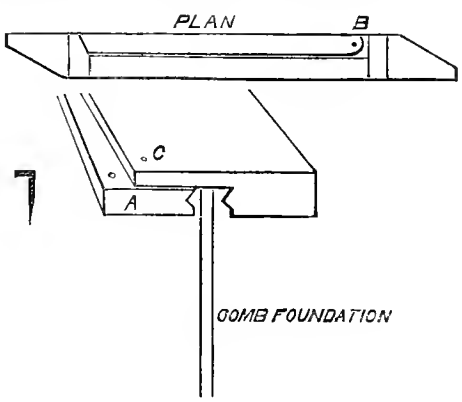
FLOWERS WITH REGARD TO HONEY.

I see under the above heading, in your *Journal* for November 15th, what I consider to be a misrepresentation of Mr. W. N. Griffin's views relative to the above. I think Mr. Jeanes is wrong in supposing that Mr. Griffin meant to grow flowers enough for our favourites, but to notice what flowers our locality mostly consisted of; that is, as I take him. Again, Mr. Jeanes states, You should grow a good batch of flowers, both honey and pollen-yielding, to save the bees from going off on cold and bad weather. I have noticed that bees will, as a rule, leave the flowers grown at home for some at a distance, and therefore I think our garden flowers are of

but very little use to them. Although I grow some in my garden for them, still I do not think it is of such great advantage to bee-keepers as Mr. Jeanes would have us suppose; and I quite concur with Mr. Griffin's ideas, and I wish him every success.—WM. B. JONES, *Tipton, St. John's.*

FIXING FOUNDATION.

I beg leave to call your attention to a far more reliable system of fixing comb foundation in bar-frames



than the one illustrated in the *Bee Journal* of October 15th. Section A works on a wire hinge that goes through the top bar, as in the plan, at B. When fixed for use, it is fastened into position by a wire pin at C.—F. A. GOODALL.

RIPENESS OF HONEY.

I am obliged to you for your reply to my inquiry respecting 'ripe' honey and the closely-related subject of granulation, and I venture to think that the matter is worth some consideration. I am aware how soon some honey granulates, especially that from mustard, which is said to crystallise sometimes in the cell. If so, another question arises: Do bees ever seal unripe honey? If certain tests are accurate, and your standard of ripeness that generally accepted by authorities, I am inclined to think they do. What then? Have they sealed, presumably for long storage, honey which will not keep sound, but which may ferment and produce disease? It is impossible to think so. Then it follows that honey which *will* keep—perhaps for months, perhaps till another honey season—may be labelled 'unripe.' And what is this, to put it briefly, but that good honey, fit for anyone's use, and therefore fit for the market, may be labelled 'unmarketable'?

Assuming that bees only seal duly prepared honey, I see no flaw in this series of reasoning. But I think I see an obvious result of it, viz., that as a conventional standard has been adopted it should be at once modified, and that a lower density than 1·350 should be taken.

As far as I see, granulation or crystallisation, if they be the same, occurring, say, in October or November, is a test of a good rich honey, likely to keep good as long as required. What more can be wanted? Yet I have known such an article extracted from tough combs of body hives, and on the surface of which a *small* quantity, evidently the unripe from a few unsealed cells, had settled, not able to reach the specific gravity of 1·350, even after being melted and cooled.

As the question bears on the sale of honey, it appears important—especially now, when much, I fear, remains undisposed of; and seeing how bee-keeping has spread among all classes, and remembering that stores have been gathered during the last two years, is it—I ask with fear and trembling—is it rank heresy to hint that we may be within an appreciable distance of the end of the work for which our Association has been started?—SOUTH CORNWALL.

[Before this subject can be fairly discussed we must lay down a clear definition of the word *honey*. Let this definition be:—'*The nectar of flowers gathered and stored by bees.*' Bees, when unable to obtain the nectar of flowers, will undoubtedly collect and seal up in their cells honey-dew, juices of fruits, molasses from grocers' shops, and, in fact, any other kind of sweets which they are able to appropriate. But, that either these substances or syrup made from the purest cane sugar, after passing through the honey-sac of the bee, and being stored in its cells, should be dignified with the name of honey, we deny *in toto*. Honey varies much in its composition, different varieties being secreted by different plants. The composition also varies with the age of the honey, a portion of the cane-sugar being gradually changed into 'inverted' sugar by the action of a ferment contained in the honey. Under the action of this ferment the honey gradually becomes opaque, and 'granulation' or 'crystallisation' is completed. The *Paris Codex* states the spec. grav. of honey as low as 1·261; and in various works on natural philosophy it is placed as high as 1·450. Now the 'mean' of these two quantities is 1·355—a very near approach indeed to the spec. grav. of clover honey—collected and sealed during a dry season, which is found to be 1·370. We must maintain, therefore, that, as a conventional standard spec. grav. for average honey, 1·350 comes very near the truth. The granulation and the keeping of honey depend very much upon temperature, moisture or dryness of atmosphere, circulation of air, &c. There *may* be pure honey that will not granulate, owing to the small quantity of ferment contained in it, and it would be an easy matter—*pace* Mr. Hehner—to prevent granulation, or to cause it, in all pure honey. Our esteemed analyst, we believe, maintains that the fluidity of honey does not depend on the amount of water it contains. We ourselves possess extracted honey which has been kept in glass jars for a period of three years, and which we defy any connoisseur to distinguish from honey of the present year. 'Depression'—to use the modern term—and low prices, prevail, not in the honey-markets only, but in those of all other commodities. Let our esteemed correspondent, therefore, lay aside his 'fear and trembling,' for the 'end' is not yet. Old England will shake off the incubus, as she has shaken off so many others in days gone by, and will stand forth, welded together with her colonies, a 'Greater Britain,' and more admired, but, perhaps, more envied than of old by the nations of the world. Fully believing, therefore, in the future of this great empire, we hesitate not to forecast a great future for the industry of apiculture already firmly established and increasing in our midst.—ED.]

UNITING.

Seeing an article on uniting in the *Bee Journal* of December 1st, will you kindly allow me to give you my experience on the subject? In my plan no scented syrup is required. Arriving home at evening with the condemned bees I smoked the bar-frame or skep (that I wish to unite them to) enough to drive them to feed. I don't stop for them to do so, as I know when they have begun. Throw the condemned bees on to a cloth, and stand the bar-frame or skep over; block up one side about two inches, and in about ten minutes the bees have all gone up. I then place the hive on its stand without any fear of fighting.

Another way for bar-frame is to take off the covering from the top of the hive, smoke the bees a little, throw the condemned bees on to the top, and drive them all down together with smoke. Cover up, and the work is done.

I find both ways to answer very satisfactorily without the least fighting, and it is very quickly done. I always unite them in the evening or early morning, before the bees begin to fly.—W. Edwards, *Mousehill, Milford, Surrey.*

INVERTED SKEPS.

In common with many other persons (who desire to help cottagers in their bee-keeping, but whose intimate knowledge of their circumstances precludes the idea of introducing bar-frame hives), I was much interested by your all too short mention in a recent number of the *Journal* of a reversed skep with crate of supers, and see in it some glimmer of a hope of helping Irish cottagers to produce more saleable honey. The bar-frame hives require some capital, some knowledge of the natural history of bees, also time, patience, neatness, and attention, the latter of which are qualities not altogether often found in an Irish cottager. On the other hand, if Paddy and his wife are not promising materials for advanced bee-keepers, they live in a country well adapted for bees, with a mild climate and abundance of flowers, and bee-food of every sort, including large stretches of heather, and they handle a swarm or a skep with tolerable courage and confidence. So if the native skep can be reversed and supplied with sections, it would be a great gain to numbers of cottagers, who, like your English skepists, find it almost impossible to sell their honey in districts like this, well provided with section honey-producers. If your *Journal* can give further information to us about the reversible skep, with simple instructions how to proceed (*a*), in the case of a stock-hive; (*b*), in the case of a swarm, it will be only deepening the debt of gratitude we already owe it. And we will carry out the directions as well as we are able, and in due time let the result be known.—Irish Novice.

LECTURE ON BEE-KEEPING ON THE HIGH SEAS.

I send you an extract from the *Arawa Gazette*, published on board the R.M.S. *Arawa* during a passage from London to New Zealand, in August and September, 1885, a reissue of which has since been printed at the *Daily Times* office, Dunedin, N.Z. It has come to me from a lady, a member of the North-East of Ireland Bee-keepers' Association, who was a passenger on board, and is extremely interesting as being the first instance on record of a lecture on bee-keeping delivered at sea. The ship's log gives the position as in lat. 46° 25′, long. 68° 55′, which would be in the Indian Ocean, about half-way between the Cape of Good Hope and Tasmania, somewhere near St. Paul's Island, that is marked on most maps.—H. W. Lett, *Ardmore Glebe, Lurgan, December 11th.*

From the 'Arawa Gazette,' No. 4, Sept. 21st, 1885.

'Bees and Bee-culture.—On Tuesday, September 15th, 1885, an interesting and instructive address was given by the Rev. R. Williams to the passengers on bee-culture. Mr. Williams touched on the medicinal value of honey, and its increasing use as a remedy for consumption. The lecturer commended bee-keeping as a most interesting and profitable study. In confirmation of the latter point he had last year gathered 92 lbs. of honey from one hive, realising 1*s.* 6*d.* per lb. The queen-bee lays some 2000 eggs per day during the season; the working bees exist only from four to nine months; the drones enjoying a summer's existence, and then, as idlers, ejected from the hive. The method of selecting and rearing the queen-bee, and the way to produce swarming, were fully described. Other most interesting facts were minutely explained, and a very hearty vote of thanks, proposed by the Rev. Mr. Murray, concluded the lecture, ably presided over by Mr. Sorby.'

Lecture on Bees.—A lecture on the above subject was delivered on Wednesday evening, November 18th, at Hampton-in-Arden, by the Rev. W. K. Suart, of Moseley, near Birmingham. The lecture was illustrated by large microscopic drawings made by T. Prince, Esq., of Bradford. The series consisted of above forty illustrations on the anatomy of the honey-bee, and are the original result of long microscopic research. Each drawing showed not only that the trained eye of the scientific microscopist had been called into requisition, but also the hand of the skilled draughtsman. As most noticeable among the illustrations we may mention one on pollen-grains and wax-plates or pockets, three on the sting, four on the spiracles or breathing-holes, and two on parasites, the whole forming an excellent series on the internal anatomy of this most wonderful and interesting insect. In explaining the different parts of the structure of the bee the lecturer interspersed useful and helpful suggestions on the practical and profitable management of the apiary. The audience was most attentive and fully appreciated the lecture. The Vicar, the Rev. T. Morris, who spoke upon the great industry of bees, and urged the cottagers to commence bee-keeping, proposed a vote of thanks to the lecturer, which was seconded by Mr. J. N. Bower.

Ether and Chloroform have been used by some with success while introducing queens, uniting colonies, &c. At the Toronto Convention of the North American Bee-keepers' Society, Mr. Jones said that he used a smoker containing three sponges, that in the middle having a few drops of chloroform upon it. By fumigating the hive with this, all the fight was taken out of the bees, and they accepted the queen given them, and made no attempt to injure her, even after they recovered from the effects of the chloroform. This method, he said, was simple, safe, and the cost for chloroform only one cent for each queen introduced. Mr. Langstroth caused a good deal of laughter by describing some experiments he had conducted in feeding bees with sugar moistened with brandy, in order to be able to safely introduce a new queen. Said he: 'It's no harm to make bees drunk, I guess. If some of you want to see some fun, get some bees drunk, and watch them. You never saw such a consequential creature as a bee.' His experiments, however, were a failure, for as soon as the bees 'sobered up,' they destroyed the queen given to them. P. Bach etherizes bees when he wishes to unite them. He places the sponge, moistened with the anæsthetic, in the hive. As soon as the bees fall to the bottom of the hives, they are united, and soon revive upon receiving fresh air.—*American Bee Journal.*

NOTICES TO CORRESPONDENTS & INQUIRERS.

B. Flatman.—The bees sent appear perfectly healthy within. No bacilli exist. Cause of death is almost certainly cold. They clearly are a mixture of Carniolan, Ligurian, and probably black. The Carniolan blood is most evident, and the yellow patch at the angle of the first abdominal segment is traceable to the Ligurian.—F. C.

Inquisitive Pat.—1. *Queen-Excluder in Body of Hive.*—This is necessary when sections are worked at the rear of the brood-nest, and to divide the brood-nest from frames used for extracting. 2. *Italian Queen for a stock doing fairly well.*—If you have no Italian queen you would do well to have at least one to infuse fresh blood into your bees. Cross-bred or hybrid bees are generally considered better than pure bred, although rather apt to be irritable. Italian and Ligurian bees are the same. 3. *Why should Honey-comb inserted in Spring be uncapped.*—Because the scent of uncapped honey attracts the bees; they carry it into their brood-nest, and so stimulate the

queen to lay. 4. *When should Supers be put on Hives* When it is crowded with bees. Sections hung in the body of the hive are often accepted, while those on the top are refused. When they are accepted and partly worked out, they should be removed without disturbing the bees in them to the racks on the top of the frames.

CHIPPENHAM.—*Removing Bees thirty yards in consequence of Floods.*—The first fine day many bees will no doubt fly back to the old stand. As the old position is liable to be flooded, you had better leave them in the new one. If you put a hive on the old stand, many of those which return will enter it, and you can return them in the evening to the hive, and so lessen the loss. The reason that bees when moved a mile or more do not return to their old stand is, that in their flight they do not get within sight of their known landmarks, and so are not attracted to the old spot. 2. *The Bumping System.*—You will find this system described in pages 275 and 276, vol. xii.

YOUNG BEGINNER.—1. *Dead Bees in Hive.*—So long as the entrance is not obstructed by them, you need not trouble about them. The first fine day the bees will bring them out. 2. *Spiteful Hybrids.*—You may next year, when your blacks swarms, re-queen your hybrid stocks by making use of the surplus queen-cells in the swarmed stock; but unless you are far removed from any bee-keeper keeping Ligurians, the young queens are very likely to mate with Ligurian drones, and their progeny will be hybrids. With care and experience, you will not be afraid of them. 3. *Inoculation with Sting Poison.*—All who are in the habit of handling bees must get to some extent inoculated, so that stings affect them not at all, or only slightly. Dr. Walker some years ago treated himself to a course of stings on the wrist, increasing the dose from one up to ten or more in a day, each dose affecting him less. It is always as well to protect the face by a veil.

S. J. C.—*Candy.*—The sample you send is rather too hard and crystalline. There is no particular time for boiling. Test the syrup by dropping a little on a cold plate, and remove from the fire when the drop sets so that it can be touched with the finger without sticking to it. Then stir the pea-flour into it, and when about to set pour out. Refined sugar is better for the purpose than Demerara.

IGNORAMUS.—*Doubling.*—We have never found it necessary to place excluder zinc between the hives, and with fifteen frames in each hive there is little danger of the queen ascending if the lower combs are kept free from sealed honey, especially the outer ones. The space between the lower frames and the upper ones should not be more than half inch, and the two hives should exactly correspond in dimensions, and should be interchangeable. Since a prize is offered for the 'best hive on the doubling system' at the next show of the R. A. S., to be held at Norwich, we advise you not to go largely into hive-making on this system at present, since no doubt new ideas will be forthcoming. The upper hive with *all* its frames is placed upon the lower. See Cowan, p. 54. *Secretary for Norfolk.*—Rev. J. Blake Humfrey, Great Dunham, Swaffham.

F. ECCLES.—1. *Wire Netting.*—There could be no objection to the use of the wire as you propose. It would in no way interfere with the flight of the bees. 2. *Feeder.*—Our opinion respecting the feeder—the description of which we thoroughly understood—remains unchanged. Your best plan will be to exhibit it at some leading show, where its merits, if any, will be certain to be appreciated. We cannot undertake to recommend any *particular* feeder.

WILLIAM MCNALLY.—We shall be pleased to make arrangements with you as to the reproduction of any of the blocks which have appeared in previous numbers of the *B. B. Journal.*

J. MOORE.—See reply to W. McNally. By referring to indices of this and previous volumes you will be able to find the information you seek respecting honey-producing plants.

J. D. MCNALLY.—*Observatory and Pyramidal Hives.*—The B.B.K.A. neither adopts nor recommends any particular hive. The most it has done in this direction is to adopt a standard frame. Abbott's observatory hive, consisting of a rectangular box with glass sides and top, and taking ten frames, which can be separated for observation, would probably suit you. Bees cannot be expected to winter well in any glass hive. We consider the ordinary unicomb-hive the best for purposes of observation and experiment. It usually takes two frames only, one above the other, the sides of both combs being open for observation. *Pyramidal Hives.*—Hives of this class have become obsolete. They were storifying hives, and were not on the moveable-comb system. We do not see any object to be attained by reviving them. We are not aware that any modern bee-keeper uses them. The Stewarton is the best storifying hive we possess. The pyramidal hive most in use in days gone by was that of M. Ducouedic, and was very popular in France. It consisted of a conical skep mounted upon one, or more, square boxes. Madame Vicat, a Swiss lady, was the inventor of a celebrated hive, named after herself, which consisted of pyramidal boxes worked upon the collateral system, similar, but superior to, the well-known Nutt's hives. But these are all exploded, and for generations have been relegated 'to the moles and to the bats.'

G. T.—We have not lost sight of our promise; the engravings will be given in an early number.

A. B.—1. *Hive for the Doubling System.*—See reply to 'Ignoramus.' 2. *Wired or Ordinary Foundation for Doubling System.*—Wired foundation is less likely to break out in extracting, but plain is quite strong enough unless you are very rough and careless. The method of fixing wired foundation has been recently explained in our columns. 3. *Best Kind of Frames.*—Distance-pins are the worst; broad-shouldered frames better; and metal ends, of proper construction, the best of all. See our advertisement columns. 4. *Best Kind of Bees.*—A first cross between blacks and Ligurians for choice. Next pure Ligurians. 5. *Heavy Stocks by Rail.*—You can safely send any stocks by rail if you fix the combs; if in a skep, by putting one or two sticks through them a few days before sending off, and pack them upside down; in frame hives by fixing the frames so that they cannot swing, and giving plenty of ventilation. See 'Useful Hints.' 6. *Probable Result of Swarms.*—If you feed until they have built out their combs, you may extract a surplus if the weather is propitious. (From your question, 'Whether they will work up into the top frames,' you do not seem to understand the 'doubling system.') 7. *Fixing Foundation.*—A saw-cut is the best method, but if properly wired on both sides it is not likely to break down. When it does, the cause is generally that the wax is not used hot enough.

RAYNOR DIVISIONAL SECTION RACK.—As we were going to press we received a letter from Mr. C. N. Abbott, too late for insertion, pointing out a misapprehension into which the Rev. G. Raynor has fallen, in stating that at the Knightsbridge Show in July 1883 Messrs. Abbott obtained first prize for a divisional section rack. Mr. Abbott did not, it appears, exhibit the section racks on that occasion; the prizes for the best and neatest divisional racks being awarded—1. Dr. Benthall; 2. Dr. Benthall; 3. S. J. Baldwin. Mr. Abbott has always manufactured Dr. Benthall's racks, and he considers he is justified in advertising them in the manner he does.

*** *Covers for Volume may be had from J. Huckle, Kings Langley, Herts.*

THE

BRITISH BEE JOURNAL

AND BEE KEEPER'S ADVISER.

REGISTERED AS A NEWSPAPER FOR TRANSMISSION ABROAD] [ENTERED AT STATIONERS' HALL.

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[No. 184. Vol. XIII.] DECEMBER 15, 1885. [*Price 3d.; post-free, 3½d.*]

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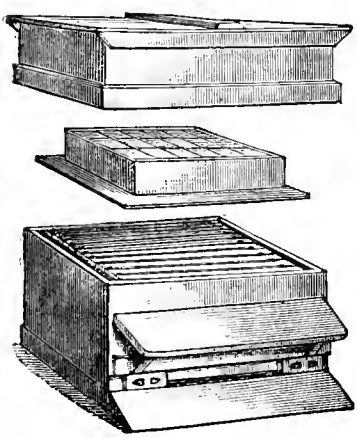

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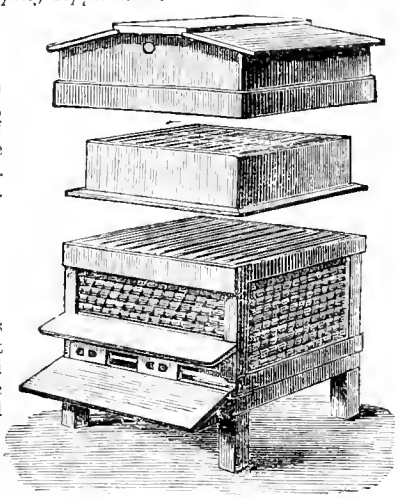

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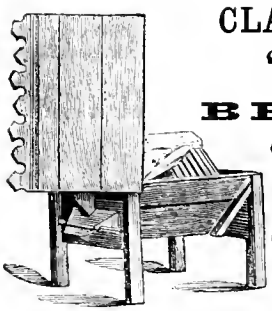

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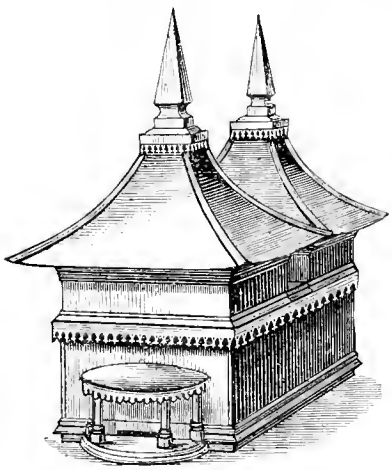

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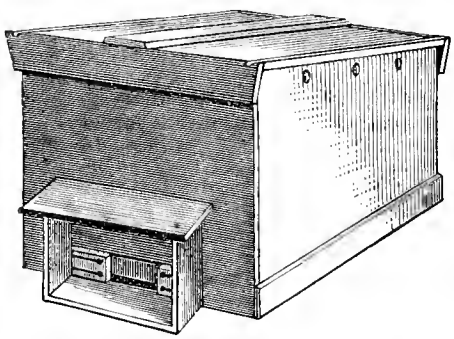

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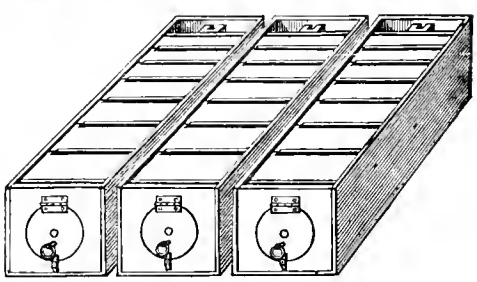

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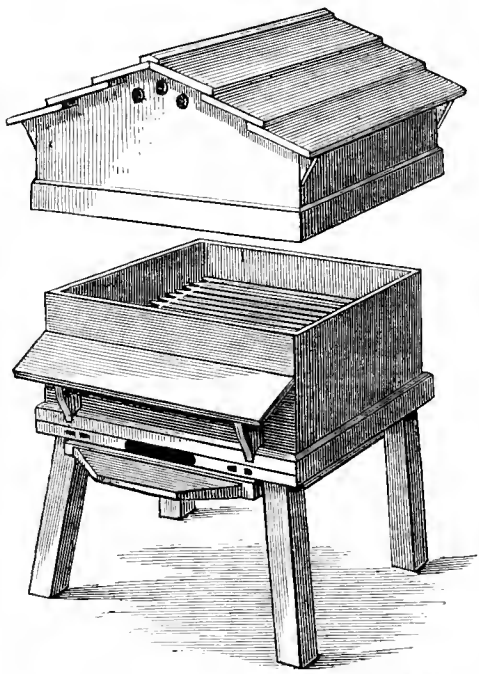

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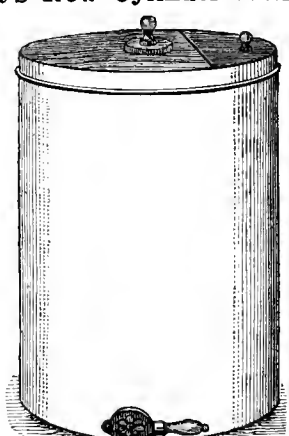

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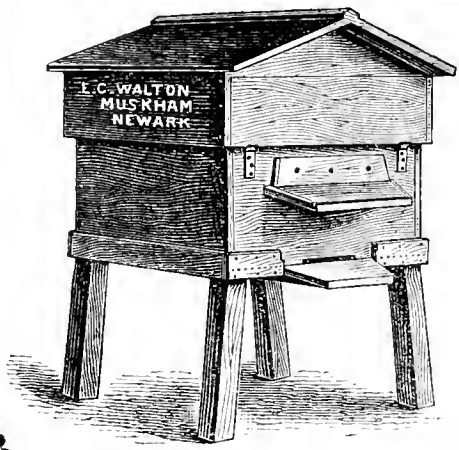

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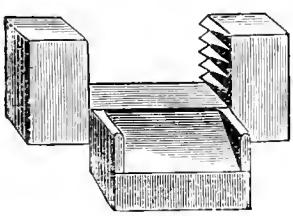

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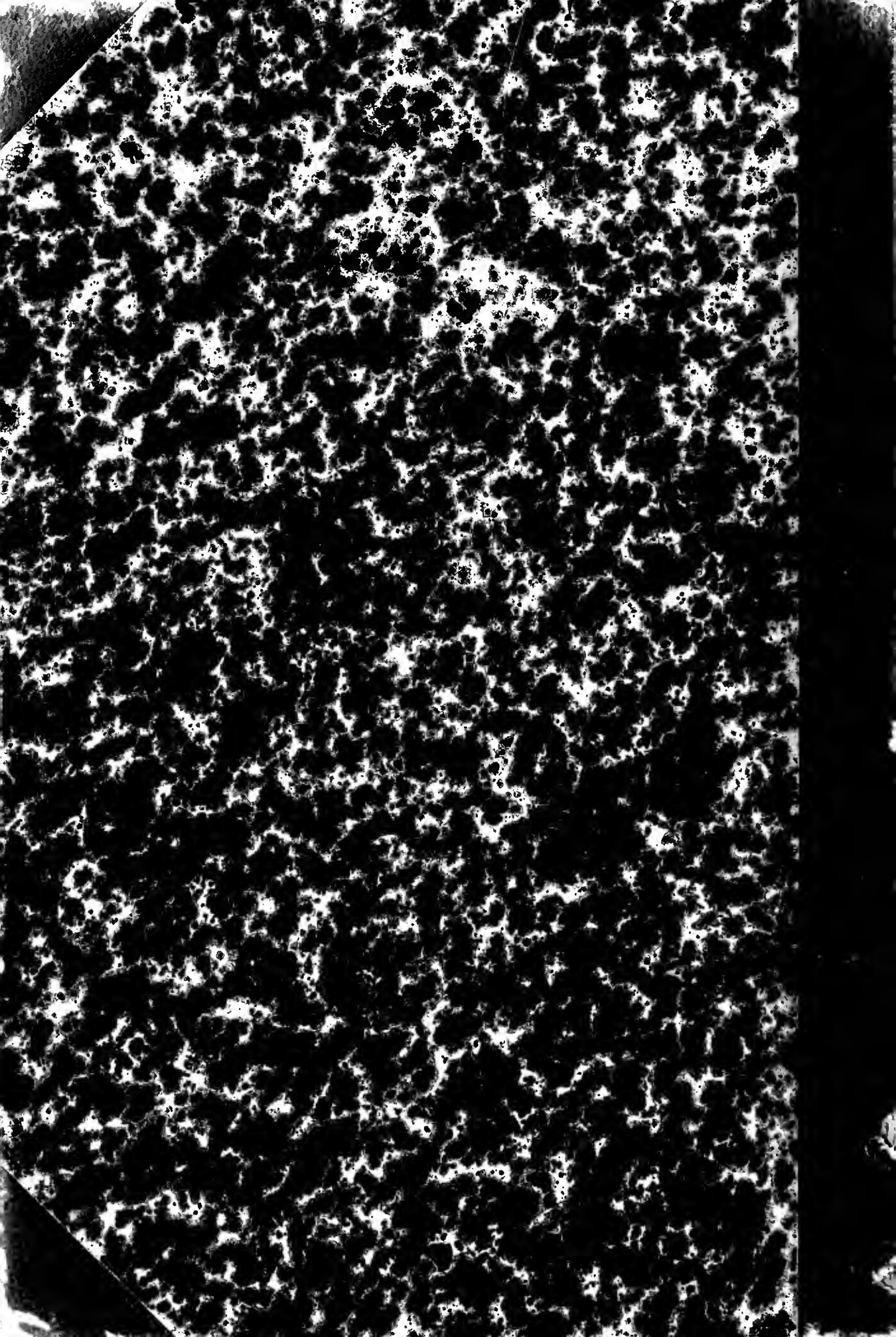
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